

BRUNNER MANUFACTURING COMPANY
MANUFACTURERS OF
BRUNNER
AIR COMPRESSORS
REFRIGERATING EQUIPMENT
Since 1906
GENERAL OFFICES AND FACTORY
UTICA, N.Y., U.S.A.

August 15, 1934

Business News Publishing Co.
5229 Cass Ave.
Detroit, Mich.

Gentlemen:

In analyzing our increase in refrigeration business for the first six months of 1934, which business was 233% of our 1933 volume, we can not help but acknowledge the fact that Electric Refrigeration News has been very helpful in bringing about this remarkable increase.

Our task from the inception of our refrigeration division has been one of distribution, and we have found that the advertising carried in Electric Refrigeration News has drawn many valued inquiries that have resulted in our securing some very satisfactory outlets for our product.

We can also trace many occasions where our name was introduced to the industry as a result of our advertising program in your publication which has materially helped in closing accounts even though the advertising did not actually pull inquiries from these customers.

We are, at present, making our plans for 1935 and are happy to advise you that our schedule, as maintained in 1934, will be repeated for the coming year.

Very truly yours,
BRUNNER MANUFACTURING COMPANY
W. C. Allen
W. C. Allen, Sales Manager

WCA:A
MEMA
BRUNNER - The Fastest Growing Name in the Refrigeration Industry

BRUNNER MFG. Co., since its entry into the refrigeration business, has been an advertiser in Electric Refrigeration News. Beginning with small space on a consistent schedule, it has increased the advertising expenditures in the News as the business was expanded and the line of equipment was broadened.

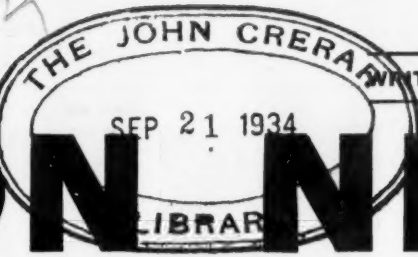
The Problem: Distribution - - The Solution: Advertising in the 'News'

That Electric Refrigeration News has performed such an important part in helping the Brunner Mfg. Co. show a remarkable increase in sales volume is inspiring to us. The satisfactory experience of this manufacturer and others

who are consistent advertisers in the *News* is ample evidence that with a good product and a sound sales policy any manufacturer can *profitably* use the advertising columns of the *News* to help solve the distribution problem.

The weekly issues of Electric Refrigeration News provide a means of making quick and repeated sales contacts with important men in the industry. This means that the *News* has trade coverage and reader interest.

ELECTRIC REFRIGERATION NEWS, 5229 Cass Ave., Detroit, Mich.



REFRIGERATION NEWS

Registered U. S. Patent Office

ESTABLISHED 1926. MEMBER AUDIT BUREAU OF CIRCULATIONS. MEMBER ASSOCIATED BUSINESS PAPERS. MEMBER PERIODICAL PUBLISHERS INSTITUTE.

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Business News Pub. Co.

DETROIT, MICHIGAN, SEPTEMBER 19, 1934

Entered as second-class
matter Aug. 1, 1927THREE DOLLARS PER YEAR
TEN CENTS PER COPY

Liquidation of Majestic Plants Will Start Soon

Bondholders Committee Rejects Lipman's Plans For Reorganization

CHICAGO—Having considered a number of proposals for reorganization as well as liquidation of the property of the bankrupt Grigsby-Grunow Co., the committee representing holders of first mortgage bonds and the group representing unsecured creditors have advised the trustee in bankruptcy that orderly liquidation of the estate should be started as soon as possible.

On Sept. 13 the time expired for filing claims against the bankrupt estate of the company, and the bondholders committee had received powers of attorney on claims based upon bonds in excess of \$1,900,000.

Among the propositions considered were five separate proposals submitted by C. E. L. Lipman of Chicago, refrigeration engineer who designed the Grigsby-Grunow hermetic unit. The last proposal was submitted July 31, and superseded all previous proposals, but it was rejected at a meeting of the two committees the middle of August. It provided for organization of three going concerns to take over the purchased property—one a radio plant, one a cabinet plant, and the other a refrigerator unit and compressor plant. The three concerns were to be separate and distinct, and were to be controlled by separate interests.

In a report made Sept. 15 to those it represents, the bondholders committee (Concluded on Page 18, Column 2)

Coming Issues

Sept. 26—Winter Air Conditioning

Looking forward to the promotion of humidifiers and air-conditioning equipment which will keep air healthful and comfortable in winter as well as summer, the next issue of Electric Refrigeration News will treat this timely subject with informative articles, studies of actual installations, and descriptions of equipment.

Oct. 3—Department Store Merchandising

Now that department stores are accounting for one-fourth to one-third of the industry's total sales of household electric refrigerators, specialty sales organizations are studying more closely than ever the methods being used so successfully by department store merchandising managers. This issue of the News will present case histories of a number of leading department store household appliance sections.

Detroit Housewives Ballot on Norge Color Models

DETROIT—With 7,300 persons, mostly women, in attendance, Norge Corp. put on an elaborate two-day show in the mammoth Masonic Temple here last Wednesday and Thursday to get public reaction to various types of color combinations in refrigerator finishes and to test a new type of dramatized, indirect selling in a group demonstration.

After results of the show have been carefully checked, Norge officials will decide whether this type of activity will be extended to the entire Norge field selling organization. Several leading Norge distributors attended the show at the invitation of the factory officials, and their reactions to the activity will be considered in measuring the results.

First purpose of the show was to get those in attendance to vote on 15 different color combination finishes for Norge refrigerators. Through this type of balloting, Norge officials hope to determine whether or not there is a definite demand for finishes in color, and if so, what color combinations are most popular from the housewife's standpoint.

Second purpose was to inject some "indirect" or "painless" selling, as J. A. "Jim" Sterling, Norge sales (Concluded on Page 18, Column 1)

'Big Machine' Group Submits NRA Budget

WASHINGTON, D. C.—Code Authority for the Refrigerating Machinery Industry has made application to NRA for approval of its budget for, and of the basis of contribution by members of the industry to, the expense of administering the code for the period from April 1, 1934, to and including March 31, 1935.

Any criticisms of or suggestions concerning the budget and basis of contribution must be submitted by Deputy Administrator Beverly S. King, room 3080, Department of Commerce building, here, prior to Friday, Sept. 21. The administrator may approve the budget or revise it on the (Concluded on Page 18, Column 2)

Bryant, Brogan Promoted By Kelvinator Corp.

DETROIT—C. R. Brogan, formerly branch manager of the Atlanta branch of Kelvinator Sales Corp., has been appointed district manager for the territory comprised of Virginia and the Carolinas, it was announced last week by R. I. Petrie, domestic sales manager of Kelvinator Corp.

Geo. T. Bryant was named manager of the Atlanta branch. Mr. Brogan has been with Kelvinator for about the past 10 years, as service manager and district commercial manager, before taking charge of the Atlanta branch.

Mr. Bryant had been sales promotion manager of the Atlanta branch since it was opened in April of this year and previous to that was connected with the Grigsby-Grunow Co. as an assistant sales manager.

Chest Model—1931 Style



Westinghouse tested this chest-type refrigerator 3 years ago. At the left is J. H. Ashbaugh, head of the refrigeration engineering department, and at the right is Milton Kalischer, in charge of technical development.

Direct Mail Meeting Program Announced

BOSTON—Among marketing executives who will speak at the seventeenth annual conference and exposition of the Direct Mail Advertising Association to be held at the Hotel Statler, here, Oct. 9-12, will be R. L. Gibson, manager, market research division, General Electric Co., Schenectady, and H. G. Weaver, director of consumer research, General Motors Corp., Detroit.

Some of the other well-known executives who will talk or preside at sessions of the convention include Allyn E. McIntire, president, American National Advertisers, and vice president, Pepperell Mfg. Co., Boston; Arthur H. Brayton, sales promotion manager, Marshall Field & Co., Chicago; J. E. Blackburn, Jr., manager of mail sales, McGraw-Hill Publishing Co., New York; James Mangan, advertising manager, Mills Novelty Co., Chicago; John C. Sweeney, director of mail sales department, International Correspondence Schools, Scranton, Pa.; and J. C. Aspley, president, The Dartnell Corp., Chicago.

General chairman of the convention is Leonard J. Raymond.

The conference program is as follows:

Tuesday, Oct. 9, opening luncheon, with Eliot L. Wight, president of (Concluded on Page 18, Column 3)

Westinghouse Claims Oldest Chest Model

MANSFIELD, Ohio—Refrigeration division of Westinghouse Electric & Mfg. Co. now claims to have had its chest model refrigerator in development for three years, and is now exhibiting a photograph of the experimental unit (see above).

In June, 1931, a Westinghouse chest-type electric refrigerator was built by hand, as are all such factory models, and received its first test in Springfield, Mass., works of the company, according to R. C. Cosgrove, manager of Westinghouse household refrigeration sales.

Evans-Kraft Absorbed By G-E Distributor

KANSAS CITY—Evans-Kraft Co., electrical appliance sales firm here, has been merged with the Air Conditioning Corp., local distributor of General Electric air conditioners.

The latter firm now handles, in addition to G-E air-conditioning products, Starr Freeze electric refrigeration (household and commercial), American Bosch automobile radios, and the Odin Stove oil circulator.

G. G. Kraft, head of the Evans-Kraft Co., and his entire staff are joining the Air Conditioning Corp. organization.

Thermal Units Bring Out New Type of Machine

Rotating Cylinder Block Featured In Novel Compressor

CHICAGO—Thermal Units Mfg. Co., manufacturer of unit heaters and unit coolers, has introduced a novel type of refrigerating compressor, specifications of which were published in the last issue of ELECTRIC REFRIGERATION NEWS, Sept. 12.

The compression cylinders are bored in cylindrical blocks of cast steel, with four cylinders in each of two blocks. In general appearance a cylinder block resembles the cartridge chamber of a revolver.

Pistons are forged in pairs. When inserted in the cylinders, the rotation of a cylindrical block causes the pistons of both blocks to work back and forth in a screw-like motion to compress the refrigerant. Compression cylinders and pistons rotate in oil.

The conventional type of valves are not used, but rather discharge ports in the plates at each end of the cylinder, so located that as the block rotates, they pass across the intake and outlet ports at the proper moment for each cycle. This allows pistons to operate within .005 in. clearance of cylinder heads, according to the designers.

In two models, the motor is direct connected to the compressor, in two others a belt drive is used, giving a compressor speed of 1,150 r.p.m. Four models are available, with 1, 1½, 2, and 3-hp. motors.

Condensers are of the double pipe, or shell-and-tube, water-cooled types. Penn and Detroit Lubricator controls, and Penn water-regulating valves are considered standard. The compressor employs Freon as refrigerant, and is intended principally for air-conditioning applications.

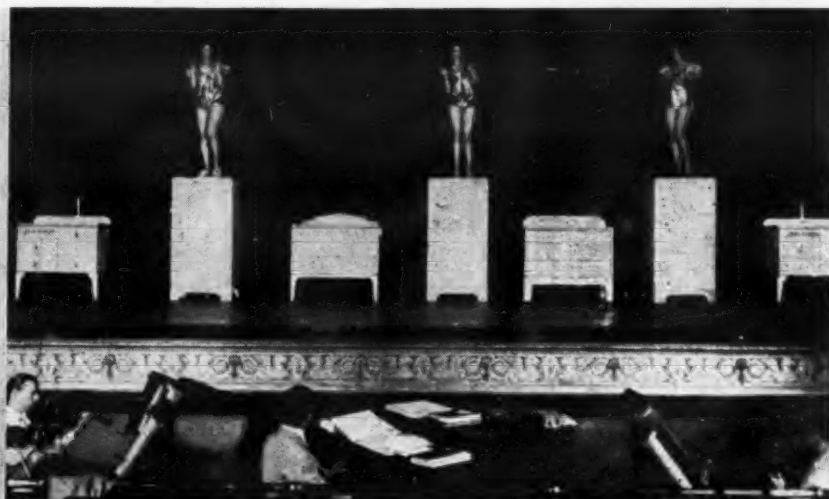
Power Takeoff for Trucks Introduced

MILWAUKEE—Louis Allis Co. of this city has just announced that its "Dynamatic" drive, which has been used to power air-conditioning systems on railroad trains, has been adapted for the power mechanism of refrigerated motor trucks. A number of the drives have already been applied to trucks.

The new drive is described as a combined speed controlling power transmission and alternating current motor which converts the variable speeds produced by the gas engine of a truck to the correct speed for operating auxiliary machinery such as a refrigerating compressor. When the refrigerated truck is in the garage, the drive can be driven by the standard a.c. city power supply.

The drive takes its power from a power take-off shaft connected to the truck engine. Up to a truck speed of 25 miles an hour the compressor drive delivers engine speed to the (Concluded on Page 9, Column 5)

Norge Puts on a Show to Test Popularity of Color Models and Value of Group Demonstration



Corine Muer's lively entertainers were part of the two-day show which Norge Corp. put on for 7,300 Detroit women last week. The women voted on 15 different color finishes, some of which were in combination with ranges. The gentleman who is raising the curtain on a few models and legs in the center picture is "Jim" Sterling, Norge sales promotion manager, who planned the show with Vice President John Knapp as a test of indirect selling by group demonstration (in the form of a playlet) of the "use value" of an electric refrigerator.

COMPLETE AS CAN BE



MODEL 1152—11 tubes. Four band, truly all-wave set. 550 kilocycles to 21.7 megacycles. 10-inch Synchro-dynamic speaker.



MODEL 1151—11 tubes. Four band, truly all-wave set. 550 kilocycles to 21.7 megacycles. 12-inch Synchro-dynamic speaker.



MODEL 753—7 tubes. Four band, truly all-wave set. 550 kilocycles to 21.7 megacycles. 10-inch Synchro-dynamic speaker.



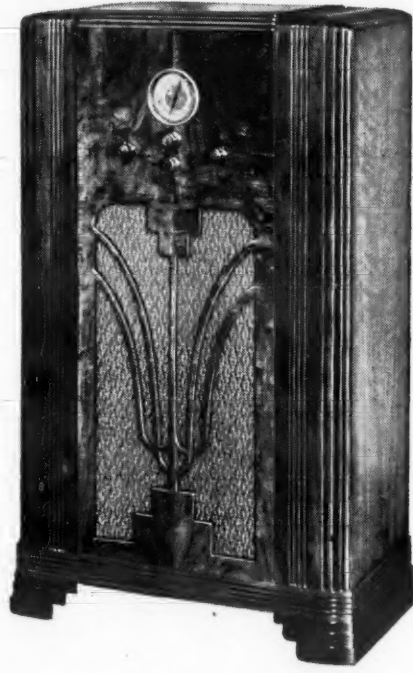
MODEL 752—7 tubes. Four band, truly all-wave set. 550 kilocycles to 21.7 megacycles. 10-inch Synchro-dynamic speaker.



MODEL 751—7 tubes. Four band, truly all-wave set. 550 kilocycles to 21.7 megacycles. 10-inch Synchro-dynamic speaker.



MODEL 671—6 tubes. Four band, truly all-wave set. 550 kilocycles to 21.7 megacycles. 8-inch Synchro-dynamic speaker.



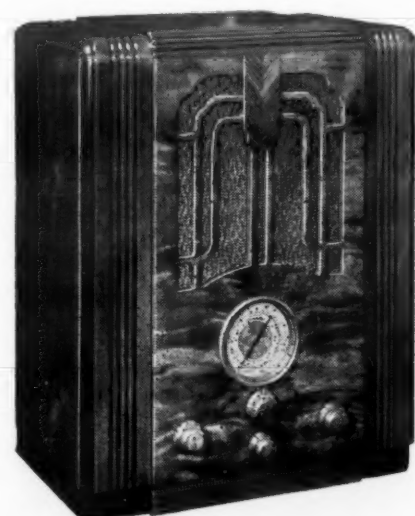
MODEL 662—6 tubes. American, short-wave, and foreign reception. 540 to 1740 kilocycles and 5.5 to 16 megacycles. 8-inch Synchro-dynamic speaker.



MODEL 661—6 tubes. American, short-wave, and foreign reception. 540 to 1740 kilocycles and 5.5 to 16 megacycles. 8-inch Synchro-dynamic speaker.



MODEL 651—6 tubes. Dual range—550 to 4000 kilocycles. Regular, police, and amateur reception. 8-inch Synchro-dynamic speaker.



MODEL 660—6-tube table model with the same range as model 661; from 540 to 1740 kilocycles and 5.5 to 16 megacycles. 8-inch speaker.

FROM "A" to "Z"!

—And
Sensationally Priced
from \$19.95 Up . . .

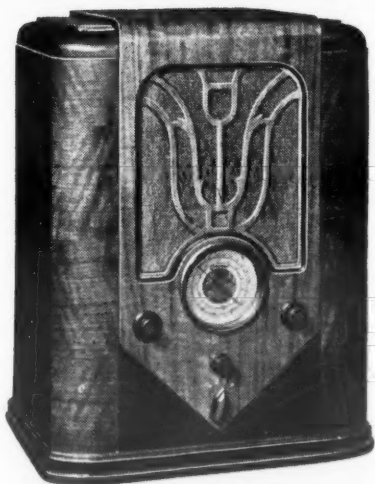
A COMPACT table model that dealers, in a blind test, guessed was priced four to six times higher! . . . A skip-band model that actually got more foreign stations than sets costing three times as much! . . . A magnificent, powerful 11-tube receiver eclipsing the field in world tuning! . . . thirteen other sensational sets! What a line!

Every set is Grunow quality; every one is precision-built. Value, appearance, performance—only Grunow could have built rings around the industry so convincingly. The exclusive Signal Beacon brings in elusive far-off stations for a blind man. A

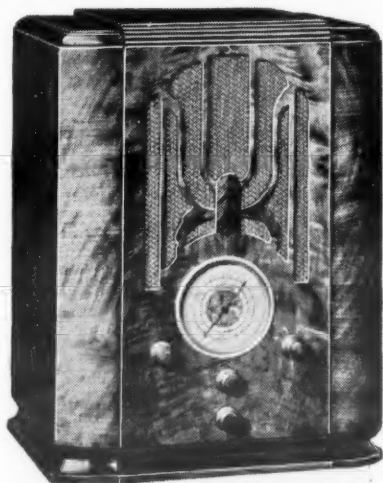
pre-amplifier, operating on *all* wave bands, gives more power, hushes noise. Provision is made for the Doublet Antenna, the scientifically perfect lure for foreign reception. A Dual Drive Tuner makes dial adjustment 5 times easier—5 times more accurate.

This new Grunow line closes sales, whatever the preference. In sales meeting after sales meeting, hard-boiled dealers have gone wild about it! Get in touch with your Grunow distributor quickly if you don't want to miss 1934's biggest radio profit-producer.

1934's most complete and outstanding line—the sensation of every price range. Signal Beacon the biggest feature of world tuning.



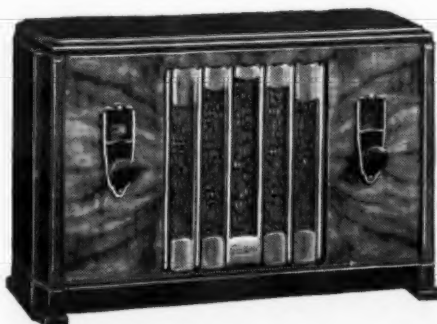
MODEL 750—A 7-tube table model with the same 4 band All-wave chassis as model 753. 8-inch Synchro-dynamic speaker.



MODEL 670—6-tube table model with the same 4 band All-wave chassis as model 671.



MODEL 650—6-tube table model with the same dual range chassis as model 651.



MODEL 550—A compact AC-DC 5-tube table model. 550 to 1720 kilocycles. 5-inch speaker.



MODEL 460—4-tube compact table model. 540 to 1740 kilocycles. 8-inch Synchro-dynamic speaker.



MODEL 450—4-tube table model. Covers regular broadcast and both police bands and amateur stations up to 4000 kilocycles. 8-inch Synchro-dynamic speaker.

Grunow

ALL-WAVE RADIO

Product of
GENERAL HOUSEHOLD UTILITIES CO.
2650 North Crawford Avenue
CHICAGO, ILLINOIS

WHAT'S INSIDE

A RESUME OF THE FEATURES AND CONSTRUCTION OF THE INTERIORS OF LEADING HOUSEHOLD ELECTRIC REFRIGERATORS

Frigidaire Offers 5 Types Of Refrigeration Service

All of the various features which Frigidaire Corp. has developed for the "inside" of its refrigerators are included into its deluxe series, one of the four series of models that comprise the 1934 Frigidaire line.

The Frigidaire "freezer" (evaporator) is made of brass containing 85 per cent copper, with every joint silver soldered, to assure non-corrosive leak-proof joints. Interior of the cabinet is lighted automatically whenever the door is opened.

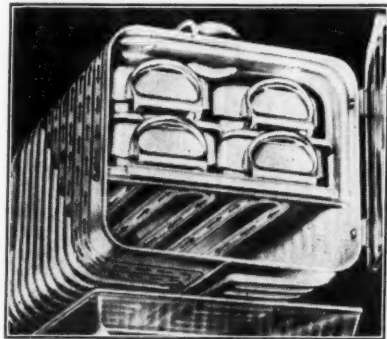
In the deluxe models the user is furnished five different types of refrigeration service: (1) quick freezing of ice in all trays; (2) "super-fast" freezing in trays in contact with super-freezer plates; (3) a frozen storage compartment for all foods requiring below freezing temperatures; (4) a "moist" cold in the hydrators; (5) normal "above freezing" temperatures for regular storage of food.

Super-freezer plates are special refrigerant containing plates supporting four of the six trays by direct contact, to provide extra fast freezing when desired.

Ice trays are released by an automatic ice tray release, which is affixed to the tray and is based on the principle of leverage.

Ice cube trays are of four types. The standard freezing tray has a special stainless finish. Tapered metal grid trays are designed for use when

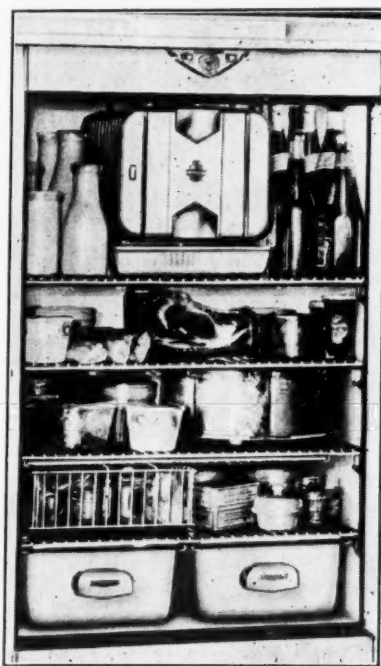
ice is needed in a hurry or in larger quantities. Rubber grid trays comprise a tray of metal and a grid of rubber. Ice cubes will fall out of the rubber grid upon slight bending



Frigidaire evaporator construction, showing method in which shelves are directly refrigerated, and ice tray release handles.

of the flexible rubber. In the quick-cube tray both the tray and the grid are made of flexible rubber. It isn't necessary to unload these trays to get an ice cube. By pressing down on the handle the user can take out one, two or any number up to the capacity of the tray.

The "ice unloading lid" is a smooth metal tray upon which the ice cubes from the metal grid tray may be unloaded. Rolled edges prevent slid-



Frigidaire 'Super' Series model interior with double hydrators, centered evaporator, utility baskets, and servashelf.

ing of ice from the tray.

The frozen storage chest is a closed compartment with a chromium door directly below the freezing chamber. In the deluxe models the hydrators, for storage of vegetables, are in the form of drawers, while in other models they are in the form of covered receptacles placed on the bottom of the food storage compartment.

In the deluxe models the utility chest is a specially designed drawer compartment for the storage of miscellaneous articles, such as eggs,

small packaged foods, jars, etc. The chest itself is divided into three adjustable compartments. In other models a "utility basket" is used for similar purposes.

Cold water is maintained "on tap" at all times in a water cooler equipped with a non-drip faucet.

The "servette" is a compact arrangement of five covered glass containers mounted on a circular base, revolving at the touch of a finger.

These Frigidaire models are equipped with adjustable shelves that can be moved up and down. Shelves can be taken out entirely, if desired.

The "servashelf" is a sliding shelf that can be drawn out in front of the food compartment for holding several articles while arranging food inside the refrigerator. It can also be taken out of the refrigerator and used as a tray for carrying articles to the kitchen work table.

Of the above named features, all of which are included with deluxe models, the super series models have the lighted interior, automatic tray release, tapered grid tray, rubber grid tray, ice unloading lid, quick-cube tray, super-freezing plates, frozen storage compartment, adjustable shelves, servashelf, sliding utility basket, and hydrator.

Master series models have lighted interior, tray release, tapered grid tray, unloading lids, quick-cube tray, super-freezer plates, frozen storage compartment, servashelf, and sliding utility basket.

The Standard series models have automatic tray release, ice unloading lids, high-speed freezer plate, frozen storage space, sliding utility basket (on models 534 and 634).

'Tempostat' Is Innovation In Major Refrigerators

Distinctive feature of the Major electric refrigerator is not on the inside of the refrigerator. It accomplishes, however, what a thermometer does on the inside of many cabinets, so perhaps it should be included in a discussion of "inside" features. This refers to the Tempostat, a device on the control panel, which shows instantly when the temperature inside of the refrigerator goes above 50° F.

The metal freezing unit in the Major refrigerators, with a chrome door, is centered at the top of the food storage compartment, allowing ample space for bottle storage on both sides. Refrigerated shelves in the cooling unit provide fast freezing.

Beneath the cooling unit is a ribbed glass defrosting tray. Directly below this tray is a sliding fruit basket.

Shelves are of the flat, ribbon type and all but model L-432 have one sliding shelf. Shelves are supported by rubber supports.

Kelvinator De Luxe Line Has Food Filing System

As Kelvinator's line of household electric refrigerators is divided into four series, and as the interiors of the models in one series are not the same as the interiors of models in another series, it is necessary to designate the series which includes the feature described by using the letters which designate the series—N, S, P, and D. The N series is the low-priced group, and the D series includes the deluxe models, with the other two priced in between.

The N, S, and P models have the all-porcelain cooling unit. Wherever the porcelain or the cooling unit would otherwise touch metal, a rubber cushion has been inserted. Below the cooling unit is the ribbed, glass defrosting tray, which can also be used to hold meats or ice cubes.

The D series models are equipped with the "cold-keeper" evaporator, which is comprised of a large tank containing a non-corrosive alcoholic solution, the surface of the tank being kept at an average temperature of 20° F. It is also claimed that this evaporator has a refrigeration hold-over of 10 to 12° F. should the condensing unit cease to function.

The dairy rack (included on S and P models) is specifically built to hold eggs, butter, and cheese.

Automatic interior lighting, operated by the opening and closing of the door, is a feature of S, P, and D models.

New this year, and a feature of D models only, is the "food filing system." This consists of three separate refrigerated compartments for dairy foods, vegetables, and leftovers suspended from the lower shelf in the bottom of the food compartment.

The dairy and leftover compartments are constructed of the same metal that is used in the shelving. The vegetable crisper is made of porcelain. These sections have two-tone chromium-plated fronts and slide out like drawers.

P models have a vegetable crisper which is a covered porcelain dish.

A rearranging shelf which slides out is a feature of P and D models. To provide extra headroom for bottle storage, the larger models in the S, P, and D series have a hinged shelf which folds against the side of the food chamber.



Kelvinator's 'food file' of three refrigerated drawers is suspended from the bottom shelf. The lady is shown placing the food in the 'leftover' drawer.

A "dry-cube ice tray, whereby cubes are sprung loose by merely pushing down on the handle of the tray, is included with P and D models. D models have a "button" ice tray release, whereby the tray is released from the freezing compartment by simply pushing down on a black button at the lower part of the tray front. A tray release of different design is used on S and P models.

Features of the D models only are the refrigerated rolling pin, a mixing bowl, and a water pitcher especially designed to occupy a minimum of space.

Crosley Expands on Shelvador Idea

Prime feature "inside" the Crosley refrigerator is, of course, the patented Shelvador. In the 1934 Tri-Shelvador models, the Shelvador feature is supplemented by the Shelvatray, Shelvabasket, and Storabin convenience accessories.

The Shelvador is a recessed compartment on the inside of the door, fitted with racks on which can be placed eggs, fruits, small vegetables, and packaged and canned articles.

In the Tri-Shelvador models, the door extends the full length of the refrigerator. In the section above the Shelvador, closing against the ventilated front, is the Shelvatray, which folds back into the door when it is



Crosley's Tri-Shelvador models, in addition to the Shelvador, include the Shelvatray, Shelvabasket, and Storabin.

closed. The Shelvatray can be used as an "unloading tray" for the housewife who is taking a number of things out of the refrigerator. The tray is removable.

The Shelvabasket is attached to the door below the Shelvador and is designed for cabbages, greens, carrots, canned goods, etc. When the door closes, the Shelvabasket swings into the open space below the refrigerated storage compartment, which space also houses the Shelvabin, a two-compartment non-refrigerated storage space for potatoes and onions.

With these features in the door, Crosley hasn't found it necessary to provide any special shelf construction, with the exception of a cut-out section in the bottom for bottle storage.

The storage compartment is equipped, however, with flat bar shelves, automatic interior electric light, and a self-closing ice tray chamber door.

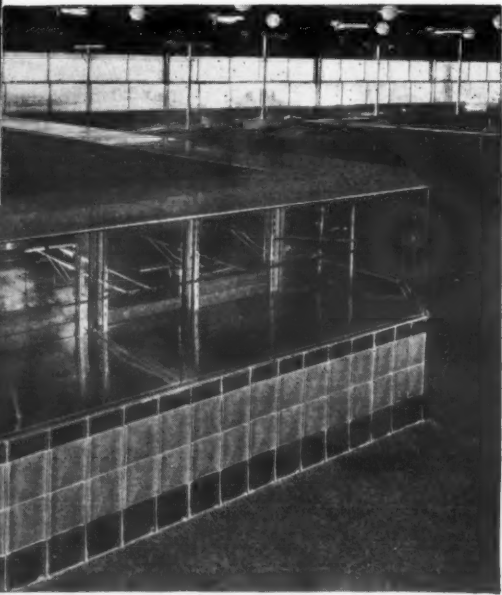
Display Equipment with a SELLING EDGE!



What a selling edge this case has... Monel Metal. It will look as good years from now as it does today. Fabricated by Southwestern Butchers' Supply Co., Los Angeles



Thriftmart Market owned by Young's Markets, Inc., Los Angeles, Cal. Its whole interior gleams with Monel Metal.



Merchants know that buyers are attracted by attractive display cases. Monel Metal edging trim, shelving, case linings, pans and racks sparkle all over the entire Thriftmart Market. Fabricators: Southwestern Butchers' Supply Co., Los Angeles.

Trim and Linings, like the Edging in these cases, are

MONEL METAL

● "Come in and look around," says the carnival-like exterior of THRIFTMART, newest of the Los Angeles markets. But once the public is inside the message changes.

"Look around and buy," say the attractive display fixtures. And surely they have a big selling edge over old-fashioned display cases, as you can see from the photographs on this page.

Observe the sparkle of their Monel Metal edging and trim. Also the gleaming, silvery Monel Metal lining (in the case illustrated in the lower photograph).

Live merchants everywhere appreciate the sales-building power of dis-

play fixtures that are snapped up by Monel Metal. Its permanently attractive high polish is easy to clean, easy to keep gleaming. Its surfaces are not a mere outer covering, for Monel Metal is solid: nothing to chip, crack or peel. And tough. Monel Metal resists wear and provides strength matched by no other metal that is so beautiful, rust-proof, and free from corrosion.

That's why you find market owners welcoming Monel Metal for counter

tops, display cases, kick plates, railing, bulk foods bins, fish cleaning stands and vegetable display racks.

No other material, no other trim, gives market and store equipment such a decided selling edge.

Monel Metal is easy to fabricate. And it is carried in stock near you in all the forms you are likely to need. Write today for all the facts.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET, NEW YORK, N. Y.

Monel Metal is a registered trademark applied to an alloy containing approximately two-thirds nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled, and marketed solely by International Nickel.

See the INCO Exhibit of
MONEL METAL
Household Appliances
at A Century of Progress, Chicago, 1934
Home Planning Hall

Indiana Utility Men Hear G-E Program

CLEVELAND—Merchandising executives and leading salesmen of the Public Service Co. of Indiana visited Nela Park Sept. 11 and 12 to inspect the new "liftop" refrigerator and companion range and to hear a presentation of G-E's "Better Light—Better Sight" program.

Sales Manager A. M. Sweeney was chairman of the specialty appliance sales department sessions at which talks on commercial refrigeration, advertising, kitchen planning and merchandising electrical ranges were given by M. T. Bard, of the commercial division; Walter J. Daily, sales promotion manager; C. J. Enderle, of the dishwasher division, and J. R. Poteat, range division manager. The new combination refrigerator and range was presented by Sweeney, and A. L. Scaife, national retail sales manager, spoke on selling the liftop. "A Rendezvous with Death," dishwasher division play, was presented in the Institute auditorium.

Public Service Co. of Indiana representatives attending: R. A. Bridges, F. W. Dopke, W. E. Smiley, B. E. Trick, Indianapolis; F. L. Cleveland, C. O. Conn, J. P. Gates, New Castle; H. O. Hansard, F. R. Hoar, P. T. Trunell, New Albany; J. F. Cooley, P. J. Wall, Lafayette; B. H. Davis, H. E. Tobey, Terre Haute; J. R. Dowd, J. V. White, Kokomo; I. L. Frost, L. G. Shannon, Seymour; D. M. Adams, Bloomington; Roy Butts, Clinton; R. K. Brock, Princeton; G. C. Campbell, Aurora; L. J. Evans, Columbus; C. E. Kiefer, Vincennes; P. W. Smith, Bedford; H. L. Williams, Jeffersonville; L. E. Williams, North Vernon.

Alabama Won't Tax TVA—Lilienthal

MONTGOMERY, Ala.—The State of Alabama will not attempt to collect taxes on property of the Tennessee Valley Authority, David E. Lilienthal, a director and general counsel of the TVA declared recently after a conference with Gov. B. M. Miller and S. R. Butler, state tax commissioner.

"All parties in the conference agreed to cooperate and to leave the TVA free to carry out its program," Mr. Lilienthal stated.

"The State of Alabama is satisfied for the present to receive 5 per cent of the gross receipts of the sale of power by the TVA. As time goes on this percentage may be increased or decreased, according to the yield."

Cities and counties have no authority to collect taxes from the TVA, Mr. Lilienthal added, but he said the TVA will voluntarily pay for the use of streets and highways an amount roughly equivalent to what these governmental units have been collecting from the private utilities.

Regarding an order of the Alabama Public Service commission for the TVA to submit its rates for approval, the TVA counsel said that no such rates had ever been filed with a state commission by agents of a federal power project.

"Our rates, however, are public and we are proud of them," Mr. Lilienthal said. "Anybody can get them by writing for them."

30,000 Inspect Crosley Transmitter in 6 Months

CINCINNATI—More than 30,000 visitors have inspected the new 500,000 watt WLW transmitter plant, situated 22 miles from Cincinnati during the past six months.

Number of visitors has necessitated limitation of visiting hours to Saturdays and Sundays, by Joseph A. Chambers, technical supervisor of the Crosley stations WLW, WSAI, and W8XAL.

Registration lists at the transmitter plant show that visitors have come from every state in the Union as well as from 15 foreign countries.

Sales Coach in Parade Helps Dealer's Sales

LOCKPORT, Ill.—Three General Electric refrigerators were sold in this city by Miller Hardware Co., local dealer, following a holiday parade which was led by a General Electric sales coach piloted by D. D. McMinn of R. Cooper Jr., Inc., Chicago distributor for G-E appliances.

Following the parade, the sales coach was parked in front of the reviewing stand and more than 500 persons, half of this town's population, viewed the appliance display.

H. G. Bogart Co. Moves to Larger Quarters

TOLEDO—H. G. Bogart Co., General Electric distributor here, has moved from 312 Superior St. to larger quarters at 316-18 Superior St.

Utility Co.'s Advertising Instructs Consumers

NEW YORK CITY—Acquainting the investor with facts and figures, the latest advertisement of the Associated Gas & Electric System states the basic purpose of the utility's campaign and points out the benefits which would accrue to securities holders if consumers and taxing bodies were made to see the light.

The last paragraph of the copy is as follows: "The principal result of confiscatory taxes and enforced rate reductions is to destroy the savings of a large number of thrifty small investors. When, however, the far-reaching consequences are sufficiently realized by investors and their protests become sufficiently vigorous, they will receive the consideration they deserve and their savings will become more secure."

Kelvinator Displayed At Garden Party

TUSCALOOSA, Ala. — Kelvinator electric refrigerators had an important place at the novel garden party held recently by Alabama Power Co. on the lawn of the Sigma Nu fraternity house on University Ave. here.

Approximately 2,000 persons were served punch from an illuminated iced punch bowl. Several dozen roses had been frozen in a large block of ice. The lighting effect was accomplished by concealing a floodlight in the pedestal supporting the 300-pound block of ice, giving it the appearance of a huge crystal.

At one side of the punch bowl Miss Eva McPherson, home economist for the Kelvinator Corp., arranged a display of her company's refrigerators, which display was also floodlighted.

NRA Public Hearing Held To Aid Ice Code Authority

WASHINGTON, D. C.—Acting on the recommendation of the code authority for the ice industry that an "emergency" exists within the competitive area consisting of the boroughs of Manhattan, Bronx, Brooklyn, and Queens in the city of New York due to destructive price cutting, the NRA held a public hearing in New York July 19 for the purpose of obtaining information to enable the Administrator to establish a schedule of minimum prices for artificial ice sold in or into the New York territory.

According to C. E. Willis, assistant deputy administrator, the record in the case is now being reviewed and no recommendation or other action has as yet been taken by the Administrator.

Kelvinator Appoints Finnish Distributor

DETROIT—Latest addition to the list of Kelvinator distributors in Europe is Aktiebolaget Mercantile, Helsingfors, Finland.

The firm was founded 33 years ago by Charles Eligren, a Norwegian vice-consul in Helsingfors, his father, S. A. Eligren, son-in-law, W. Gruling.

Small Town Dealer Sells 225 G-E's in 7 Months

CONNELLSVILLE, Pa.—During the first seven months of 1934, Bill Swan, local G-E dealer, sold 211 refrigerators, 11 water coolers, two commercial jobs, and one range. This town has a population of 13,290 people.

GOLF GAME NETS STAR SALESMAN

HOW'S THE REFRIGERATOR BUSINESS, ED? GETTING ANY ORDERS?

PLENTY! OUR BOXES ARE EQUIPPED WITH FLEXIBLE RUBBER TRAYS AND GRIDS. THEY CERTAINLY MAKE SELLING EASIER. (GOSH! THREE FOURSOMES AHEAD OF US.)



SAY-Y-Y! THOSE TRAYS ARE GREAT THINGS. WE'VE GOT 'EM AT HOME. BET I COULD MAKE SOME MONEY SELLING REFRIGERATORS EQUIPPED WITH THEM.

THERE'S AN IDEA! WHY DON'T YOU JOIN OUR OUTFIT? THE CHIEF'S LOOKING FOR A GOOD MAN. (GEE, THOSE BABIES ARE SLOW.)



I'D LIKE TO IF I THOUGHT I COULD MAKE AS MUCH MONEY AS YOU'RE MAKING.

YOU CAN. SIMPLE AS SINKING A THREE-INCH PUTT. IT'S JUST A CASE OF FEATURING FLEXIBLE RUBBER TRAYS AND GRIDS. (WON'T THOSE BABIES EVER TEE OFF?)



ARE YOU KIDDING ME?

KIDDING NOTHING. I FEATURE 'EM IN ALL MY SALES TALKS--USE 'EM AS DOOR OPENERS--GET HOT LEADS WITH 'EM--SELL 'EM TO PEOPLE WHO HAVE BOXES WITH METAL TRAYS. IT'S A PUSH-OVER. LOOK. THAT'S WHAT I EARNED LAST MONTH. (THANK HEAVEN THAT FOURSOME FINALLY GOT OFF.)



HOLY SMOKE! I'D LIKE TO GIVE IT A WHIRL. ARE YOU SURE YOUR BOSS IS LOOKING FOR ANOTHER SALESMAN?

ABSOLUTELY, DROP AROUND TOMORROW. I'LL PUT IN A GOOD WORD FOR YOU AND YOU CAN START RIGHT IN MAKING SOME REAL JACK. WELL, COME ON, BILL. WE'RE UP AT LAST.



MONTH LATER

ED, I'M CERTAINLY GLAD I JOINED YOUR OUTFIT. MADE MORE MONEY LAST MONTH THAN I'VE MADE IN ANY ONE MONTH IN FOUR YEARS.

SO YOU LIKE IT, EH? I TOLD YOU YOU WOULD. BUT GIVE FLEXIBLE RUBBER TRAYS AND GRIDS PLENTY OF CREDIT, MY MAN! (GOSH! THREE FOURSOMES AHEAD OF US!)



It will pay you to insist that Flexible Rubber Trays and Grids be included as standard equipment in all the refrigerators you sell. By so insisting you'll sell more refrigerators—and sell them easier.

Many Salesmen are Cashing in on Flexible Rubber Trays and Grids

Don't wait—pass the good word along. Talk to all your men yourself and tell them how Flexible Rubber Trays and Grids speed up sales.

People are no longer content to put up with the inconvenience of old-style trays. They're demanding that the refrigerators they buy have the time, temper and trouble saving convenience of Flexible Rubber Trays and Grids.

In fact, this demand has become so great that more than 3,000,000 have been sold—more

than a million last year alone; and sales are now over 250,000 a month.

Is it any wonder Flexible Rubber Trays and Grids are used as standard equipment by all leading refrigerator manufacturers?

Write today—to the manufacturer of your refrigerator or direct to us—and get full details about these new money-makers. And be sure Flexible Rubber Trays and Grids are standard equipment in every model of the refrigerator you sell.

THE INLAND MANUFACTURING COMPANY, DAYTON, OHIO

Flexible Rubber Trays and Grids

ICE CUBES THE MODERN WAY

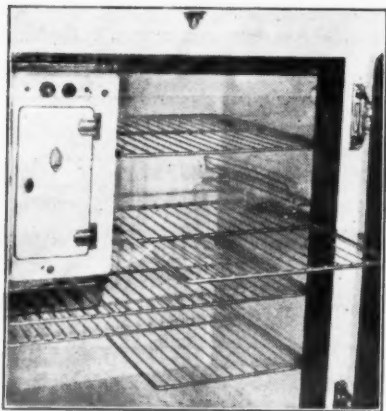
WHAT'S INSIDE

Evaporator Construction Feature of Spartons

Interiors of Sparton household electric refrigerators are lighted automatically when opened by the spring plunger which also serves to swing open the door.

The cabinet liner has acid-resisting porcelain on the floor, rounded corners, and a floor that is below the door opening to prevent spilled liquids from running out on the floor.

The freezing unit is enclosed on the front and side by white porcelain



Protruding from the Sparton refrigerator is a sliding shelf. Immediately above it is the egg rack, while at the left is the porcelain evaporator.

baffles. The front baffle is equipped with a door which leads into the ice cube compartment. There is a large, double-depth pudding tray in each

model, with two trays that can also be used for meats or game.

Food shelves are of the heavy ribbon type, doubly heavy tinned. These shelves are supported by rubber knobs in the side walls of the liner, held in position by special clips.

An egg and dairy rack is located on one side of the interior.

Both the door and door jam on the interior are finished in odorless bakelite with Monel metal reinforcements. Door gaskets are of live rubber.

Westinghouse Froster Has Many Features

The all-porcelain food compartment of the Westinghouse household refrigerator is made of heavy welded sheets, porcelainized in three coats by the same process as exterior porcelain. It is one-piece construction, all joints being welded, and corners rounded. One of the features of the food compartment is that it is acid resistant.

In the top of the food compartment, through the metal section and the insulation, there is an opening to permit the passage of the froster (evaporator) into the food compartment. In the recent Master series' models a change in construction from the previous design was made to provide for easier installation, and to improve certain minor points of operation.

The froster plate fits flush with the top of the food compartment, hence there are no projections into the latter. However, since the insulation around the opening and above the froster is made non-absorbent by the application of wax pressed in with an electrically heated iron, absorption of foreign particles or odors is prevented.

Micarta, a Westinghouse product, is another feature of the inside con-

'Handy Tray' Aids Housewife



The housewife unloads her food on the tray, which can then be detached and carried away. Also shown are other features of 'C' models such as the evaporator and shelf construction.

struction of the Westinghouse refrigerator. Micarta, as used in the door trim and breaker strips, was adopted primarily for utility and insulation efficiency, and secondarily for beauty. Under the Micarta a strip of wax-impregnated felt is laid. The Micarta door trim is fastened into the steel framework by heavy screws.

Interior of the food compartment is electrically lighted. The light is located at the top in such a position that it gives the best illumination without shadows. It lights automatically when the refrigerator door is opened.

The froster is made from Sanalloy. Refrigerant flows through the rounded sections, cools the rounded surfaces and the flat surfaces in between, and provides a large froster area. A refrigerated shelf, insuring super-fast freezing under all conditions, is included in the evaporator.

Anodic treated aluminum froster shelves serve the dual purpose of supporting the trays, and providing more contact surface for the trays, through which the heat is removed from the water, thus freezing cubes faster. These shelves are removable for easy cleaning.

Three types of trays are furnished as standard equipment, or made available as accessories in the Master series refrigerators. They are: the regular aluminum tray with aluminum dividers, select-a-cube trays, and aluminum tray with rubber grid.

The non-splash defrosting tray, made of ribbed glass, serves both as a receptacle for water when defrosting, and as a storage dish for ice or other products.

Flat ribbon steel shelves provide a surface for all containers, and are especially valuable for small-bottom pitchers, bottles, etc. The steel is heavier than that ordinarily used, and is doubly coated to prevent rust or corrosion. Ends of the strips are polished to a fine, smooth finish, to prevent scratching or tearing of shelves. The heavy supporting bars are cut off at the corners, which allows the shelf itself to be bent slightly to coincide with the porcelain shelf supports, and thus provide an extremely tight fitting shelf, free from the tendency to wobble or vibrate. Several models of the Master series are equipped with sliding and rolling shelves.

The refrigerator door is insulated and finished with Micarta, which forms the union between the outer and inner sections. Rubber gaskets complete the door construction, and form a seal completely around the door and door opening. A rubber bumper is attached to the door jam which gently springs the door open when the latch is released. Door hinges and hardware are brass, chromium finished.

Due to the cabinet construction, when the door is closed the cabinet is hermetically sealed. This is made possible through the welded exterior, waterproofed joints, and a seal-tight rubber gasket around door openings.

Sliding Basket Featured By Montgomery Ward

All three models in the Montgomery Ward line have porcelain interiors with acid resisting bottoms and rounded corners.

Shelf supports for the flat bar shelves are of rubber and on model

650 there is one lift shelf and on model 750, two lift shelves. These shelves lock to the side of the cabinet, permitting additional storage space for tall bottles.

Evaporators on all three models are of porcelain with a two-tone chrome-finished door on the medium and large size cabinets. They are centered, allowing bottle storage space on one side.

The medium and large-size cabinets are equipped with an electric light which operates with the opening and closing of the door. The light has a protector shield.

A sliding dairy basket for eggs and butter is attached to the second shelf of both the medium and large size cabinets.

Interior of Sanitary Units Have Special Design

The stain resisting porcelain interior of the Sanitary electric refrigerators has all corners rounded on a large radius. The beaded front and flush side wall construction of Sanitary liners offer no hiding places for spilled food particles.

Sanitary refrigerators have black Insuroc breaker strips, which are impervious to liquids and fats. The flat bar-type shelves have a non-staining finish. The shelf supports are of black rubber.

The ridge-bottom glass defrosting tray slides easily, yet is held positively in place by its ridge-bottom feature.

A refrigerated shelf in the freezing unit of the medium and larger-size Sanitary models provides extra-fast freezing for one tray. Freezing units are finished in porcelain. Each model is equipped with one rubber ice cube tray.

The automatic electric light illuminates the interior each time the door is opened. The sliding dairy basket is a feature of each model.

Leonard's 'Cold Chest' Provides 'Frozen' Storage

The porcelain cooling unit, like the porcelain interior, is standard on all Leonard household refrigerator models. Leonard LD and PD models have a porcelain crisper for vegetable storage.

The "cold chest" in the LD and PD models is a double-depth tray for keeping game, fish, or other foods in a frozen condition. This is placed in the evaporator by removing one freezing tray shelf and two trays.

Leonard has achieved an innovation in its sliding egg rack, which has been so constructed as to hold bottles, thereby eliminating the "where to put bottles" problem. This rack is a feature of the LD and PD models.

The "easy cube" tray on the LD and PD models makes it possible to get cubes by drawing the tray part way out and pressing down on the handle.

The sliding shelf on the PD-4 and PD-5 models enables the user to reach in an easy fashion a dish or article of food at the back of the full-depth bottom shelf.

Automatic interior lighting is a feature of all Leonard models.

A tray lifter on the LD and PD

Leonard Gadgets Prove Useful



The housewife pulls out this tray from the bottom of her Leonard refrigerator and is ready to unload the contents. Immediately above the tray is the dairy basket and to the right a vegetable container.

All models are equipped with a handle-type ice tray release to facilitate the removal of the trays from the evaporator shelves. There is one flexible rubber tray in each model.

A glass defrosting tray is placed below the evaporator in each model.

The medium and large sized models are equipped with vegetable fresheners, a covered porcelain receptacle for leftovers, fresh vegetables, etc.

models eliminates the possibility of difficulty with sticking trays. Placed under the tray, it easily lifts the tray from the bottom of the shelf where frost may have frozen it fast.

The special refrigerated shelf is a feature of S (except SL-1 and SL-15), LD, and PD models. This shelf has the refrigerant concentrated directly underneath it in tubing built as part of the shelf, to provide faster freezing.

RANCO THERMOSTAT

with Stainless Steel Frame

THE NEW TYPE KR RANCO with stainless steel main frame and case is corrosion-proof, tough, rigid and takes a fine glossy finish.

THE AUTOMATIC RECLOSING CIRCUIT BREAKER COMPANY
1300-10 Indianola Avenue, Columbus, Ohio

A WIDELY FAVORED REFRIGERATOR INSULATION THAT MEETS HIGH MANUFACTURING STANDARDS

Celotex refrigerator insulation, exceptionally resistant to the passage of heat, made of long, tough cane fibres, is manufactured in the Celotex Company's own mills.

From the standpoint of designer, maker and owner, Celotex offers so many advantages that it is widely used in the construction of refrigerators, water and bottle coolers.

Of special interest to manufacturers is the Fabrication Department at the Celotex mills. Here the special equipment, plus the nature of the Celotex board itself, makes it possible to furnish Celotex ready fabricated to any type, size and form of cabinet. Close quality, thickness and dimension tolerances are maintained.

Manufacturers appreciate the workable qualities of Celotex—the fact that it may be readily machined for the cut-

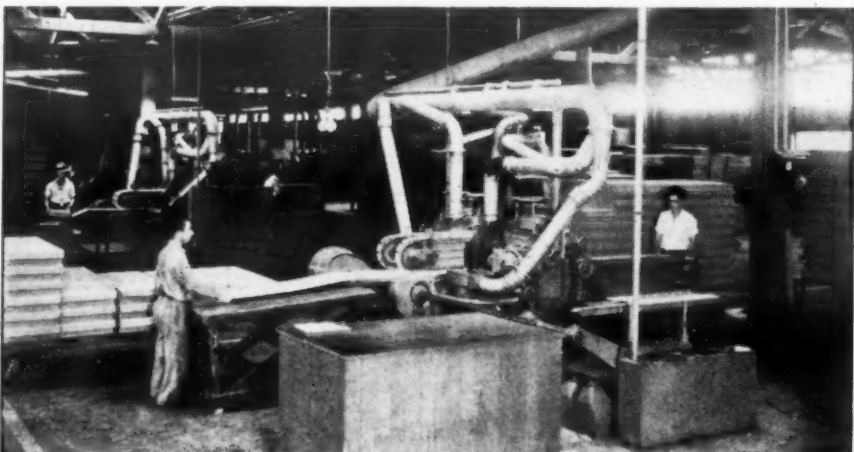
ting of holes, for beveling or for notching—as well as its inherent strength which, in spite of lightness of weight, assures a sturdier cabinet.

When Celotex is used the possibility of heat leaking cracks or joints is reduced to the minimum. For further reasons why Celotex so completely meets high standards of manufacturing efficiency, remember:

Celotex possesses sound-absorbing characteristics of great value; is sterilized, waterproofed, odorless, sanitary; and, furthermore, all Celotex Cane Fibre Products are manufactured under the Ferox Process (patented) and therefore effectively resist damage by Fungus Growth, Dry Rot and Termites (White Ants).

We invite consultation with our refrigeration specialists. Address:

THE CELOTEX COMPANY, 919 NO. MICHIGAN AVE., CHICAGO, ILL.



Section of the Fabrication Department, Celotex Mills, Marrero, La. View of Double End Tenoners on which bevels and edge cuts are made.

CELOTEX
BRAND
INSULATING CANE BOARD
Reg. U. S. Pat. Off.

WHAT'S INSIDE

G-E Features Stainless Steel Evaporators

General Electric's Monitor Top refrigerators have acid resisting porcelain interiors, and are chiefly distinguished by the stainless steel, open front evaporators, which are folded into shape and welded at all joints. All ice cube trays are in direct contact with the freezing surface.

These evaporators are fitted with double depth ice cube trays, one rubber tray, and a handle-type ice tray release.

The evaporator is at the right-hand side of the cabinet, allowing ample space for bottle storage.

When the door of the cabinet is opened, the interior is automatically flooded with light, illumination being furnished by a metal-guarded bulb.

Monitor Top models are equipped with sliding shelves, adjustable in

ating and air-conditioning chamber.

While this feature is especially apparent in the interiors of Potter Series Two and Three, even the more nearly conventional interior of Series One embraces the air-conditioning principle which has become a major feature of the Potter line.

Series One in interior arrangement, employs the commonly used single compartment. Mounted directly over the freezing unit is a fin-type coil for air-conditioning the food compartment and maintaining it at proper temperatures of 40 to 50° F.

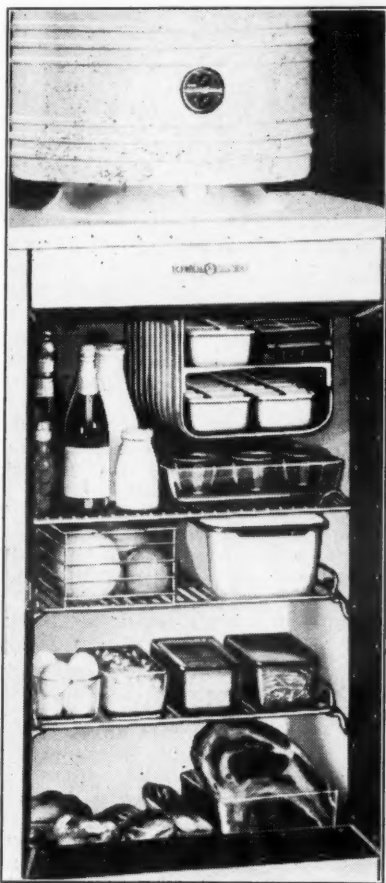
Air circulating over this unit is deflected by baffle plates so that it cannot contact the extremely cold surfaces of the freezing unit proper. The result is that the temperature of this air is not reduced to a point that induces dehydration, and the fin-type air conditioning and cooling coil is maintained free from frost.

To prevent flow of cold air from the freezing unit into the main food compartment, the freezing unit is encased in a shroud, with baffle plates arranged to surround the coils with dead air space. With air-flow thus arrested the freezing operation becomes an independent function.

Potter Series Two, in large measure, duplicates the functional principles of Series One, except that in this series the air-conditioning cooling unit is mounted directly back of the freezing unit, with the freezing unit separated from the general food compartment by placing it in a special frozen storage compartment. In this compartment are provided sub-zero temperatures for frozen storage, quick cooling and allied service.

The general food compartment is maintained at a 40° to 50° temperature by the air-conditioning cooling coil located directly back of the frozen storage compartment.

Potter Series Three, known as Potter deluxe models, have been designed expressly for the refrigerator pros-



Interior of Monitor Top model, showing the many containers for various types of foods.

height with flat steel wires running from front to rear.

Accessories in the Monitor Top models include a covered vegetable pan, wire fruit basket, glass chiller tray, and a set of covered glass food containers (the food containers are not standard on all Monitor Top models, however).

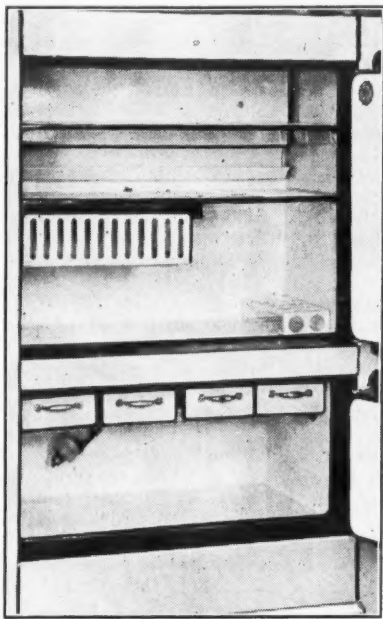
The G-E flat top models have the stainless steel evaporator with refrigerated shelves. In these models, however, the evaporator is centered.

Automatic interior lighting is standard on flat top models. Models F-4 and F-5 are equipped with three full shelves and one half shelf of the bar type with steel wires running from front to rear. Model F-7 is equipped with three full shelves, two of which are of the sliding type.

'Air Conditioning' for Foods Is Potter Feature

Outstanding in the interior of Potter refrigerators is the porcelain shelves. The porcelain shelves, which last year were supplied only in the deluxe models, will be standard equipment in all Potter cabinets for 1935.

Absence of hydrating pans in Potter refrigerators is made possible by the use of principles originally evolved by T. Irving Potter in 1926, and which convert the interior of Potter cabinets into a combined refriger-

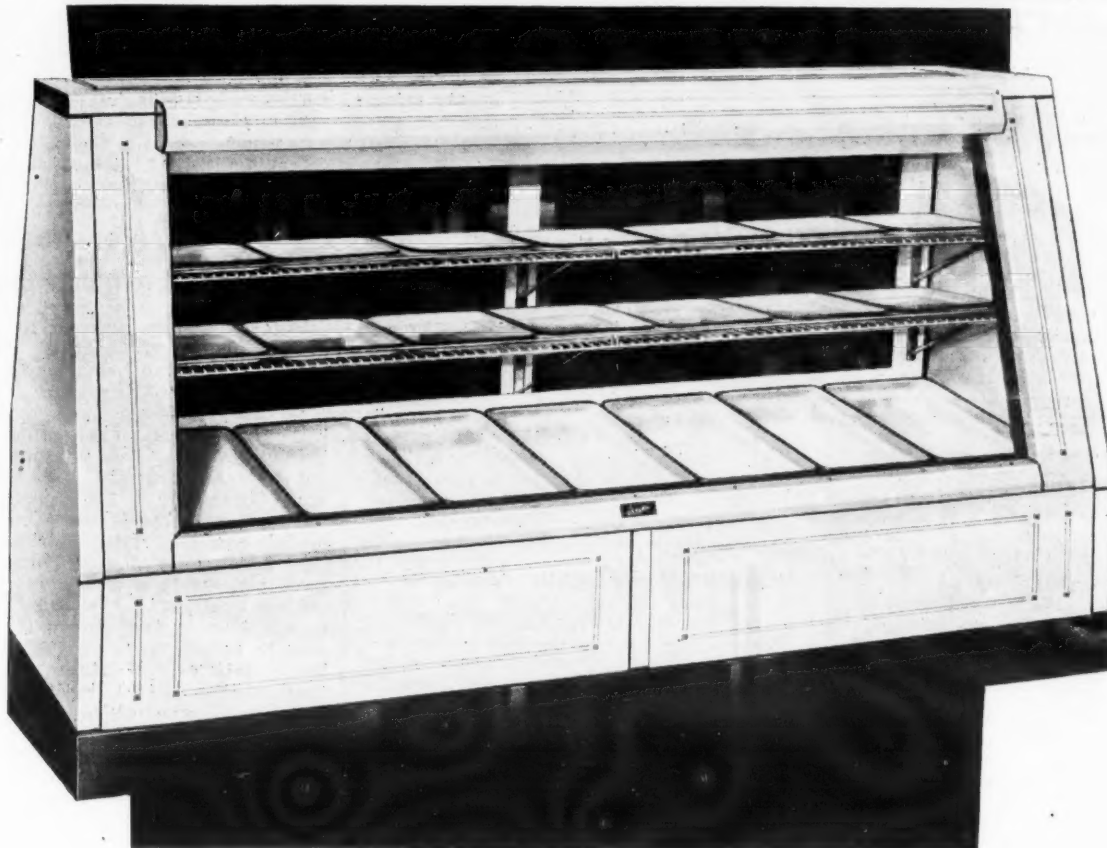


Potter deluxe model, showing separate frozen storage compartment at the bottom.

pect who wants the utmost in "air-conditioned" refrigeration. The interiors of this series are distinguished by the use of two separate and completely unrelated compartments, the upper for general food storage; the lower providing a sub-zero freezing unit and a large quick cooling and frozen storage chamber. Of special interest from the standpoint of arrangement is the position of the air-conditioned-cooling coil which is mounted across the extreme top of the back wall in the food compartment.

The porcelain enamel shelves, due to the ample exposed surfaces, facilitate easy sliding of dishes and prevent the tipping of small receptacles.

Electric lights, automatically operated as the door is opened and closed, are standard on all three series; and all models are equipped with sliding fruit and vegetable basket, as well as an egg holder.



SERIES 5

THE "HUMDINGER" ALL-SERVICE DISPLAY CASE

SERIES 5

ACCURATELY fills the needs of more successful merchants than any other Display Case—having been built on the requirements of thousands of Meat, Grocer and Delicatessen Dealers. These Cases have aptly been called "The Humdinger"—giving more kinds of service, better than any other case on the market. Note the three shelves, allowing 33 1/3% more display for any and all kinds of food being refrigerated. This, of course, means that much more sale and profit on food.

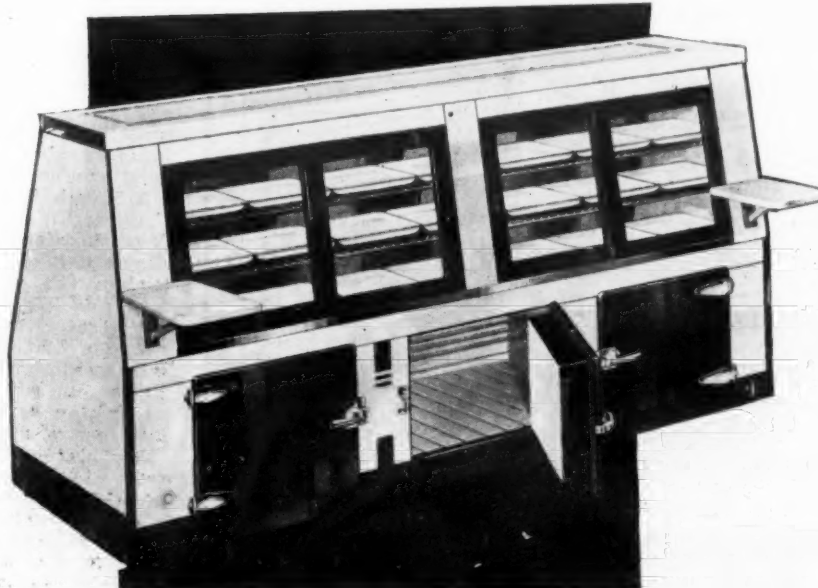
The Seeger Series Five All-Service Display Case—in various sizes, has all the very latest improvements desired by progressive merchants in the Grocery, Meat Market and other trades using Display Cases. It is equipped with the newest type refrigeration coils—extra large moulded hard rubber service doors—two package and cutting shelves—storage compartment—electric lights. Entire case is modernly designed with "Seeger Made" Porcelain exterior and interior.

Series Five means more profits for Merchants—and for Dealers and Distributors of Electrical Refrigeration.

For Complete details, write
SEEGER REFRIGERATOR COMPANY
SAINT PAUL, MINNESOTA

New York, N. Y.—Los Angeles, Calif.—Chicago, Ill.—Philadelphia, Pa.
Buffalo, N. Y.—San Francisco, Calif.—Boston, Mass.

BY
Seeger
SAINT PAUL



Series 5 is advertised to 132,963 Merchants



At the left is a model of the Potter Series No. 2 showing construction of low-temperature compartment with door. At the right is shown the evaporator (with ice tray release) in the No. 1 series.

WHAT'S INSIDE

Copeland Changes Interior Design

Interior of the Copeland refrigerator has undergone some revamping since the first 1934 models were introduced. Porcelain is the food-chamber finish in all models, and the two refrigerators in which a brine tank was used are no longer in production. In every model, a one-piece food chamber is used.

Evaporator is of the dry-expansion type and is sufficiently removed from the right-hand food chamber wall to permit storage of bottles in the space

shelf. The evaporator has a porcelain front but no side shroud.

All models have acid-resisting porcelain interiors, Panelyte breaker strips, rubber-covered shelf studs, easy-release ice trays, and lighting.

Gibson Provides Extra Space for Bottles

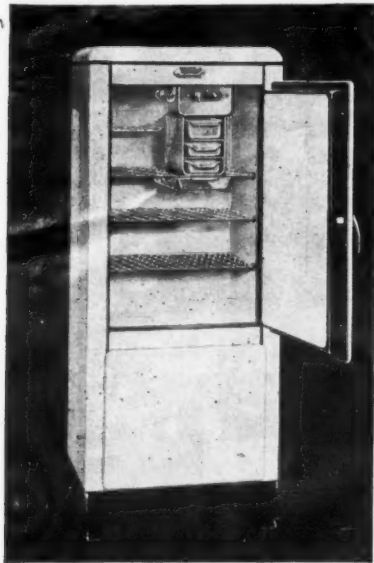
Substantially the same features which marked the cabinet interiors of the 1933 Gibson line are again employed in that company's models this year. All interiors are porcelain, and have porcelain-finished open-type evaporators located on the left side.

Shelves are of the ribbon variety, and some of them slide. The models are equipped with dome lights and butter and egg baskets. Another feature is a shelf which may be removed to provide space for tall bottles.

Stewart-Warner Models Have Rolling Shelves

Equipment and arrangement of the food chamber in the 1934 Stewart-Warner refrigerator represent one of the most important changes made in this year's line over that of 1933.

Each of the three standard models has embossed shelf supports (instead of hooks), and a porcelain evaporator which is centrally located. In all models, standard and deluxe, the interior finish is porcelain.



Evaporators on the Copeland models have been moved towards the center to allow bottle storage space. Note diamond-web shelves.

so created. The evaporator is finished in porcelain and has an open front.

In all models having exteriors of porcelain, the shelves are made of pickled and annealed open-hearth steel, approximately 16-gauge, and are of the diamond-web type. Their metal area, however, is no greater than that of the average wire shelf. Rubber buttons serve as shelf supports.

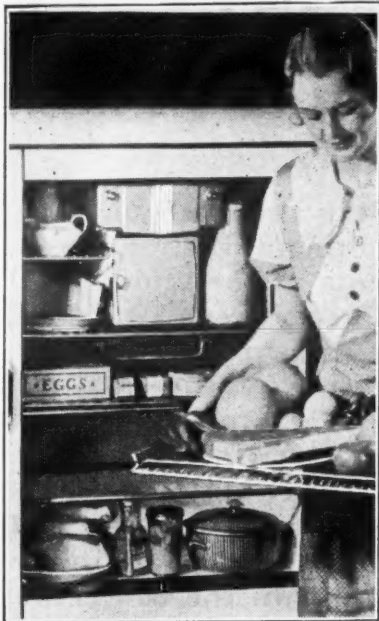
Electric lights are standard equipment in all models except No. 454.

Coldspot Has Basket On Inside of Door

Featured in the 6-cu. ft. and 7½-cu. ft. models of Sears, Roebuck & Co.'s Coldspot refrigerator are two baskets attached to the inside of the door, suitable for storage of smaller food items. The baskets are so located as to telescope slightly the food shelves.

Each model has three full-sized shelves and a half shelf at the left of the porcelain-shrouded evaporator, which is located in the upper right-hand corner of the storage compartment. Bottom shelf is split to make possible storage of bulky objects. All shelves are of flat wire.

The 4-cu. ft. model has three shelves, but no half-shelf and no split



Stewart-Warner shelves are removable so that they can be used as trays.

Evaporators on the deluxe refrigerators are centered, and have chrome-finished doors, hinges of which may be snapped off the evaporator shell and clamped on the opposite side to give the door a right or left swing, as desired.

Eye-catcher of the deluxe models is their rolling shelves. Edges of the

shelves rest between, not on, grooved rollers. These shelves may be pulled outward easily, and come to a stop when a metal clasp catches on one of the shelf support bars.

By flipping this clasp up and over, a shelf may be removed and used as a tray—there being a protecting wire arrangement on all sides. Height of any shelf may be changed, without removing it, by removing each corner of the supporting bars up or down.

Grunow Shelves Have Novel Construction

Porcelain is the interior finish used in all models of Grunow's line this season—the finish being acid resistant at the bottom of the liner.

In the standard line, comprising three models, the evaporator is centrally located and is without a door. All shelves, which are of the bar type, are removable.

The deluxe line is made up of four models equipped with central evaporators which have doors. These models have removable bar shelves, the two bottom shelves in each model being so constructed that one part of them may be taken out to provide space for large articles. Another feature of these models is their indirect lighting.

Central evaporators in the two super-deluxe models are closed and have three flexible metal ice trays and a deep tray; the evaporators in these models are also equipped with tray releases. Shelves are of diamond mesh construction and are of the split type already described at the two lower levels. Indirect lighting is used, and each model has a 12-qt. hydrator pan as standard equipment.

User of 1934 Norge Explains Value Of Features

Editor's Note: In submitting material for the "What's Inside" issue Norge Corp. officials forwarded the following article written by a user. In addition to describing the interior of a Norge model, it also explains the "use value" of many features which are standard in other makes.

By Lillian J. Houston
2612 17th St., Detroit, Mich.

I AM one of the many American housewives who has enjoyed the pleasures of electric refrigeration for many years. Its benefits, conveniences and savings are indispensable to the health and happiness of my family's life. I would rather part with any of the other home comforts I have than it. It answers special needs each season of the year and we couldn't be without it for a day—winter, spring, summer or fall.

We bought our first electric refrigerator in 1923. It performed well but lacked many of the features of present models. Although it had served us splendidly, I had three principal faults to find with it: (1) it was not large enough to serve the needs of my growing family, (2) it was not as handy to use and take care of as present refrigerators and, (3) I was not obtaining the savings from its use which friends who owned the latest models reported. Thus we bought a new Norge refrigerator this year.

In this buying experience, I was struck by the fact that few salesmen with whom I talked knew much about the part an electric refrigerator plays in the kitchen or how it is used, from the woman's angle. That is something which all dealers cannot know too much about. I had no proper appreciation of the much greater convenience and use value of present refrigerator models until I had my new refrigerator actually in my home for a month.

Since my old refrigerator still ran satisfactorily, I was somewhat afraid that the added conveniences of new models would hardly justify the cost of replacement. I met no salesman who helped me much to see that it would. Thus, I have thought that some brief description of this new model might be of interest in showing just what the average housewife most appreciates.

Although it is my aim to describe the interior of my new refrigerator from the standpoint of its added convenience, it may be interesting to first explain the points which interested me in deciding to get a more modern refrigerator. First of all, I was sure that my old model was too small to gain maximum food savings. As it has proved out, a family of five loses much in owning a refrigerator with only five feet of storage space.

My present model has seven cubic feet of storage space and actual monthly money savings from quantity marketing, ability to keep and use leftovers, and elimination of food spoilage are almost trebled. Careful check shows that I save about \$8.00 per month now as against a little over \$3.00 before.

Norge Interior Offers Conveniences



Interior of a Norge model, showing the egg rack, hydrovoir (on folding shelf), defrosting tray, and glass food containers.

Then, my old refrigerator looked old fashioned, particularly after remodeling my kitchen. It lacked the new features. The dealer from whom I had bought it had gone out of business. Service was something of a problem because on one occasion it could not be repaired on the premises. It was more expensive to maintain than newer models.

The majority of men seem to think that a woman is not interested in the mechanism. Two salesmen suggested that I leave this entirely to the company making the refrigerator—surely they were large enough to have selected the right mechanism. In a sense, I suppose that is true, but women are not too dumb to understand a mechanism's workings nor are they uninterested in anything so vital.

The door of a modern electric refrigerator itself has many points of interest to the housewife. Marked improvements have been made. My old model never properly sealed itself. Inside temperature was not what it should be. The mechanism ran too much and the consequent electric current cost was too high. I was therefore very interested in the live rubber gasket that perfectly seals the door of my present refrigerator.

I kept count one time to find that our family opened the refrigerator door an average of 50 times a day.

Regarding the inside of the refrigerator, I like the rounded corners of the unpierced food compartment lining. There are no cracks to breed bacteria, even after most careful cleaning. The rolled lip at the bottom prevents anything spilled to drip out on the floor. I have no trouble with food odors. There are no holes, openings or crevices to allow heat to enter or to corrode or sour.

The waist-high shelving eliminates stooping; I never did care about getting my exercise that way. A push button at the compartment's edge automatically controls interior illumination. How convenient it is to have one's refrigerator lighted; particularly for us since the refrigerator must sit in the darkest corner of the kitchen. That, by the way, is why I was so interested in white porcelain. It lights that corner up so much.

The freezing compartment is located near the center, rather than at the side. This gives me plenty of space to keep milk and other beverages cold. The defrosting tray just under the freezer is one of the most useful storage dishes.

The freezing compartment is covered with a sanitary porcelain shield and is fitted with an odor-proof door, which protects ice cubes from odor and contamination. Skeletonized freezer shelves are slotted for self-draining.

The aluminum ice trays in my present model have a reinforced handle and rolled edge which give them strength. There is one standard, one rubber and one deep freezer tray; the latter comes equipped with a two layer partition.

A removable shelf to the left of the

freezer is a decided convenience in that I can now store the tallest sort of bottles without trouble. I used to have to lay them on their sides. Often, particularly with carbonated beverages, I had to throw out the remainder of a bottle because I couldn't get its cap back on securely enough to lay on its side.

The adjustable bottom shelf is one of the most convenient features I have ever seen. It can be easily raised or lowered when full to accommodate such large items as a watermelon, a big roast or a tall can.

Another appreciated feature is the "Hydrovoir" which is placed above and to the left of the freezing compartment, where the temperature is most proper for vegetables, green stuffs and fresh fruits. Although this is large enough to take care of all our vegetable storage needs, the "Hydrovoir" is so handy that I have three of them which I use for other purposes, when needed. This permits me to vary my covered storage equipment to the needs of the time.

The egg rack, holding 16 eggs and hanging from the lower shelf against the left wall, is a decided convenience. Likewise, the butter and cheese rack is very handy, located just below and to the right of the freezer. I keep butter, cheese and other knick-knacks stored in this.

ANSUL

SULPHUR DIOXIDE

METHYL CHLORIDE

✓ Dry
✓ Clean
✓ Pure

Need anything more be said except that the high quality of Ansul Refrigerants is guaranteed by an individual analysis of each cylinder.

ANSUL CHEMICAL CO.
MARINETTE - WISCONSIN

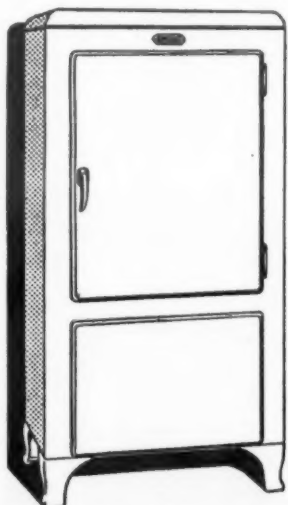
STYLE

Copeland has it. It is apparent in every feature of the Household line, in its appointments, its finish and design.

Porcelain clad evaporators; diamond-grid shelving, lustrous Porcelain and Porceloid finish cabinets, compact unit assembly, chrome-plated hardware and rounded corners are but a few of the many details which go to make perfection in Copeland refrigerators.

Designed to fit the needs of any average-sized family, to blend with decorative scheme of modern kitchens, the style appeal of Copeland makes it very popular.

Distributors everywhere are finding that Copeland is high in public favor because of its Economy, Efficiency, Convenience and Style.



Copeland makes seven models of Household Refrigerators and 21 distinct models of Commercial Condensing Units.

We invite applications from progressive distributors who desire to represent a maximum value in refrigeration.

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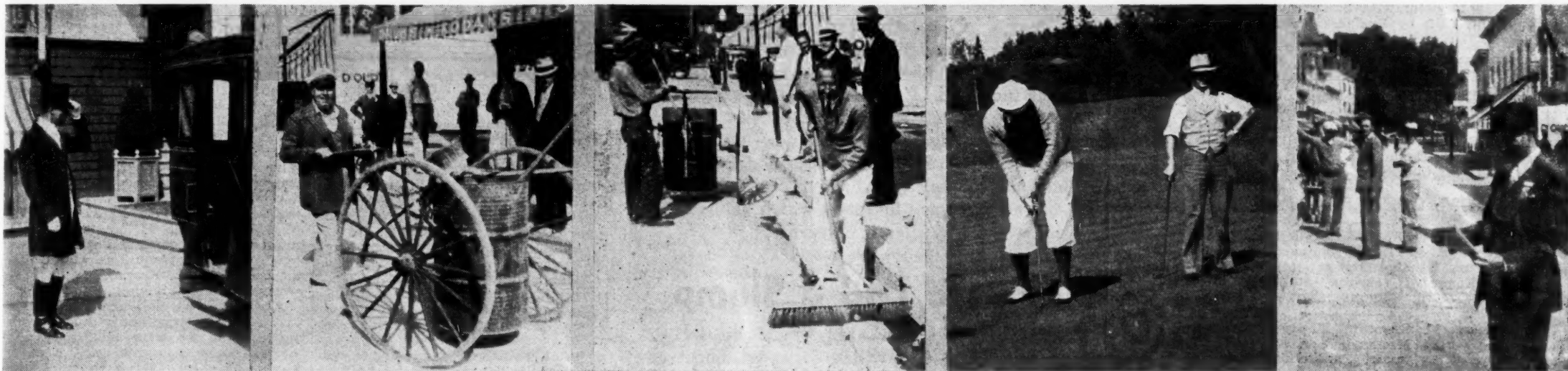
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Descriptive literature gladly sent upon request
Division of
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Kelvinator Salesmen See Old-World Settlement on Mystery Cruise for Contest Winners



Winners of the recent Kelvinator "Barrels of Fun" contest got a glimpse of 19th century customs and settings when they stopped at the old British settlement on Mackinac Island.

Redisco Reports Least Delinquency in History

DETROIT—Despite the fact that its accounts receivable on July 31 were greater than at any previous time in its history, Refrigeration Discount Corp., a subsidiary of Kelvinator Corp., was able to show the smallest percentage of delinquency since the inception of the organization, officials have announced.

Predicting an even better showing for August, C. M. Armstrong, vice president and general manager of the finance company, stated that at the end of July the percentage of customer accounts over 60 days past due stood at 15/100 of one per cent of the total business on the firm's books. Over 30-day delinquency also was at the lowest point in the history of the company, Mr. Armstrong stated, adding that repossessions also were comparably lower.

United Mine Workers May Voice Opposition to TVA Program

WASHINGTON, D. C.—The United Mine Workers of America, in answer to an invitation to participate "actively" with the Tennessee Valley Authority in finding new uses for coal, has informed the authority that the union executive board would determine what position the mine workers would take.

The TVA was discussed at the mine workers' January convention and the board at that time was instructed to establish the union policy with regard to the agency created by Congress to conduct an economic experiment in the Tennessee River basin.

Alabama coal operators recently sought an injunction to limit certain activities of the TVA in electricity use promotion, which they claimed would diminish coal consumption.

Data on Russ Instant Beer Cooler

In the July 11 issue of *ELECTRIC REFRIGERATION NEWS* there appeared an article on beer cooling and coolers, in which mention was made of the Russ instant beer cooler and an attempt was made to describe its operation.

In order to clarify any misunderstanding which may have resulted from this article, the News has been requested to make it clear that the information concerning the Russ cooler was not furnished by the Russ Soda Fountain Co. nor with its approval.

Information concerning the Russ instant beer cooler and its operation should be considered authentic only when coming from the Russ Soda Fountain Co. or from the General Electric Co., through which it is merchandised.

Illinois Refrigerator Co. Creditors to Meet

STERLING, Ill.—Creditors of the Illinois Refrigerator Co. of Morrison, Ill., are scheduled to meet at 10 a. m. Sept. 21 in the office of Philip H. Ward, referee in bankruptcy, located in the Lawrence building here, for the purpose of considering the petition of the trustee for the Illinois Refrigerator Co. to sell the remaining real estate of the concern.

Zimmerman, Bosworth Take Western Trip

CLEVELAND — P. B. Zimmerman, manager of General Electric Co.'s special appliance sales department, accompanied by H. H. Bosworth, central station division manager, left here Sept. 11 on a western trip.

Allis Co. Introduces Truck Power Takeoff

(Concluded from Page 1, Column 5) compressor, the speed varying with that of the engine.

At speeds above 25 miles an hour, the drive regulates so as to deliver a controlled speed to the compressor. This regulation is automatic, and is provided electrically from the regular 6 or 12-volt storage battery system of the motor truck. About 50 watts of power is used on starting, and about 30 watts while running, Allis engineers state.

The drive is 12 in. in diameter, and about 22½ in. in overall length, including pulleys. It can be mounted directly behind the driver's cab in the truck. The driven end of the drive is belted with V belts to the extended power take-off shaft, and the driving end is belted to the compressor.

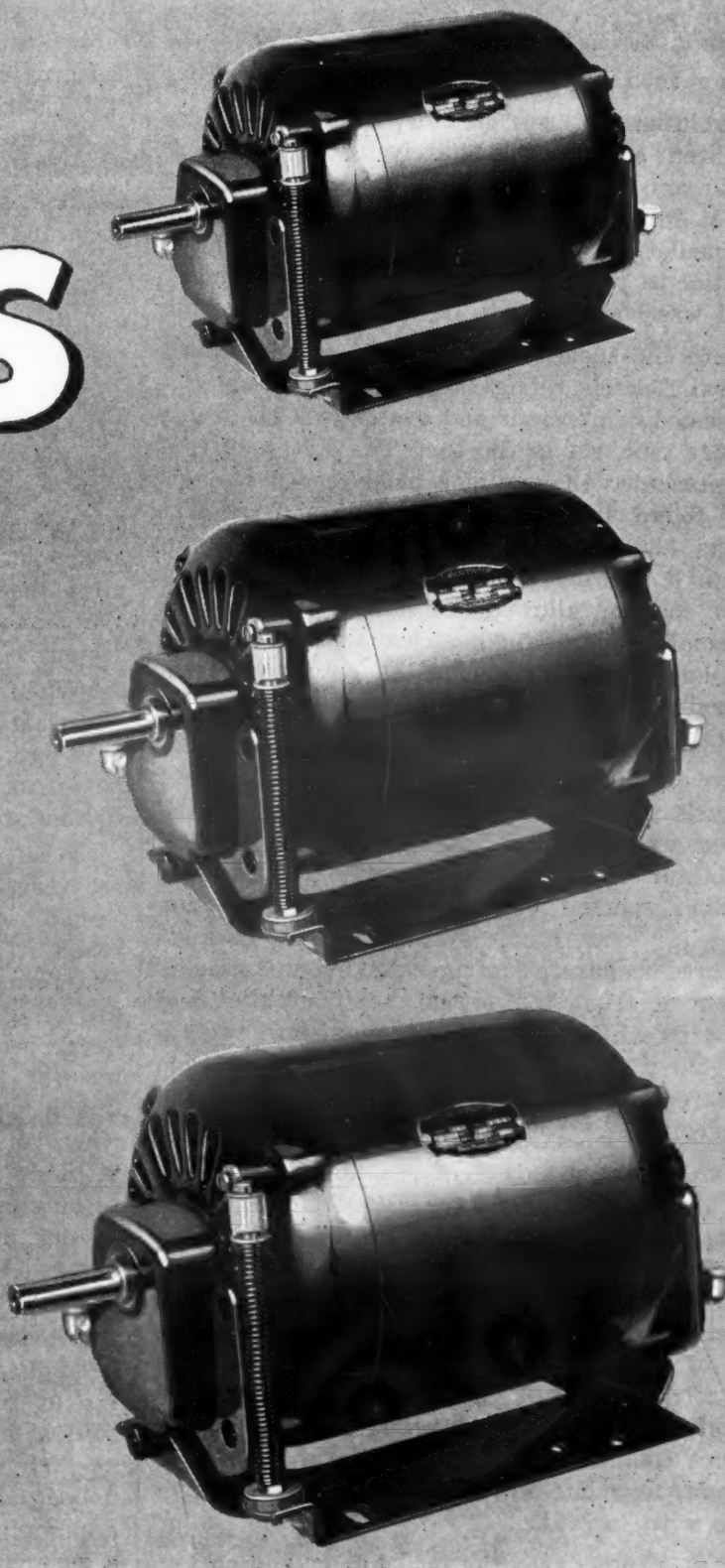
DELCO MOTORS

NOW... A COMPLETE LINE OF QUIET MOTORS for AIR CONDITIONING!

To meet the requirements for quiet and dependable motors for air conditioning equipment, Delco has developed a complete line of repulsion-induction and polyphase motors, from one-third horsepower up to three horsepower.

These motors are quiet for four reasons: (1) magnetic hum has been reduced to the minimum; (2) end-play noise is absent, due to cork end-play cushions on each end of the armature; (3) vibration and other natural "running" noises have been effectively isolated from the base by the use of a special vulcanized rubber cradle mounting; and (4) an automatic belt tightener keeps proper tension on the belt without continual adjustment, and reduces belt noise. In addition, sealed lubrication insures long life to the bearings, since the proper grade and amount of oil is added when the motors are shipped from the factory.

Delco dependability is too well known and too well appreciated by manufacturers, dealers and consumers to require special comment. Those who are now designing air conditioning equipment requiring motors with good starting, accelerating and running characteristics, as well as low temperature rise, should carefully consider the features built into these special new Delco motors. Available also are high quality, quiet motors in ½ or ¾ h.p. for the circulating fans in air conditioners.



DELCO PRODUCTS CORPORATION, DAYTON, OHIO

ELECTRIC REFRIGERATION NEWS

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What's Inside

WHEN Duane Wanamaker, advertising manager of General Household Utilities, coined the phrase, "It's Time America Knew What's Inside an Electric Refrigerator," he had reference to refrigerants. The phrase should be equally applicable, however, to cabinet interiors, which perhaps have not received the attention they have deserved from salesmen.

Taking for granted the fact that an electric refrigerator will hold low temperatures, housewives—after they have satisfied themselves with the appearance of a box—are keenly interested in how the interior of the refrigerator is arranged. Convenience still ranks next to pride of ownership as a leading buying appeal for electric refrigerators, and convenience centers largely on interior arrangement and devices for making food storage space more useful.

Evolution of refrigerator cabinet interiors has been slow but definitely progressive. A decade ago the baffle down the center of the cabinet interior was considered as essential as the insulation. Air circulation was considered essential to proper refrigeration, and the baffle-board was considered to be the only answer.

Onto the scene then came the revolutionary General Electric refrigerator, with its hermetically sealed compressor and evaporator all in one package unit, set in the top. The design of this unit precluded the use of a baffle, and G-E engineers found, in sooth, that it was unnecessary. It was also learned that a single door, even though it occupied more total space and left a larger opening, allowed less heat to escape than two smaller doors; for heat leakage depended on total length of door gasket, and not door area. General Electric also pioneered sliding shelves.

Frigidaire was first to promote extensively the covered vegetable pan to prevent drying out of foods, the acid-resisting porcelain liner, the rubber ice tray, and other interior features. Kelvinator has carried the refrigerator pan-and-dish scheme out to a logical conclusion with its food filing system. This consists of three separate refrigerated compartments suspended from the lowest shelf of the food compartment, designed to accommodate vegetables, dairy products, and leftovers. Norge has pioneered many interior gadgets, such as the watervoir (ice water on tap). And so it has gone.

Two of the most startling innovations in the field of interior design have come from manufacturers comparatively new to the industry. One, the Crosley Shelvador has helped its maker skyrocket sales from 15,000 to close to 150,000 a year. It consists simply of the ingenious idea of putting shallow shelves in the door of the refrigerator. Last year a Canadian firm brought out the Hostess refrigerator with this feature (manufactured under Crosley license) in Canada, and cut a wide swath in sales over there with its aid.

Potter introduced the principle of having two separate and completely unrelated compartments cooled by different evaporators. The upper compartment is for general food storage, and the lower for quick-cooling, sub-zero freezing, and frozen foods storage. By this means Potter

claims that foods are "air conditioned," and not dried out during the storage period.

Considerable room is left for experiment in the design of refrigerator cabinet interiors. That engineering departments are working assiduously on this phase of refrigerator development is indicated by the appearance this year of the chest models (reminiscent of the old top-icer), and by advance hints of new ideas which may be incorporated into 1935 models. All of which, of course, will hasten obsolescence of refrigerators now in use—which should be welcome news to sales managers.

How to End a Slump

DETROIT was unusually hard hit by the slump. A city which depends almost entirely upon one industry (the automotive), it went into the dumps badly when that industry suffered its worst years in more than a decade. To top it all off, Detroit's two big banks went under, never to reopen. Those who said that the city was "through" found few with courage enough to argue the point.

Citizens from other localities were somewhat astonished to notice how quiet Detroit remained after its crushing blows. Apparently it was struck dumb as well as struck down. Even though insult (from government officials) was added to injury, Detroit remained mute.

This summer, however, the city has miraculously regained its voice. The owners of the Detroit Tigers gambled \$100,000 on the purchase of a dynamic manager, Mickey Cochrane. They gambled successfully. Detroit had not won a pennant since 1909, but under Cochrane's inspiration the Tigers took the leadership in mid-season in the pennant race, and have hung onto it precariously ever since.

On paper, the Tigers perhaps do not deserve their position at the top of the heap. They have the greatest second baseman in organized baseball, Charlie Gehringer. They have the pitching sensation of the year in Lynwood "Schoolboy" Rowe. Rest of the talent is just ordinary, but has been so injected with team spirit by Manager Cochrane that almost the entire team is batting over .300. Game after game has been pulled out of the fire by sheer fight and by brainwork the like of which hasn't been seen in the big leagues for years.

As a result, Detroit has changed from a city with its tail between its legs to a city of vociferous maniacs. The effect on business has been truly remarkable. But if the Tigers were to lose the fight at the last lap—as it seemed they might a few days ago—the blow to Detroit's morale might be as heavy as that of the bank holiday. We make that statement advisedly, and in all seriousness.

When the Tigers went into a hitting slump a fortnight ago, Detroit became panicky. A few days ago, however, the slump ended and the team began to hit again. And therein lies the moral to this story:

When asked what caused the slump—and the recovery—Manager Cochrane admitted frankly: "I don't know. They're out of it and I'm satisfied to let it go at that." George Moriarty, umpire and former Tiger manager, observed: "Slumps are things that begin and end, and so far I have never been able to find anybody who could tell me why they begin or why they end." Declared Coach Cy Perkins: "Men are strange things when you stop to consider them. Any little thing is likely to affect them. It can be so small as to be unnoticeable. I remember now that it was raining during most of the time we were in the dumps. Perhaps that had something to do with it."

Obviously the philosophy of the diamond can be applied to business, which also has its slumps. As in baseball, business slumps always end. And a flock of little, unpredictable things may be their cause. The truth of the matter is that nobody can put his finger on the exact cause of a slump, just as nobody is capable of prescribing a sure cure for a depression. They are brought about by a multitude of little things, and they come to an end when a great number of people and firms have worked out their own individual salvations. Spirit, enthusiasm, and inspiration have a lot to do with it.

LETTERS

'History' Issue Valuable To Financial Executives

Bankers-Commercial Security Co.
270 Madison Ave.
New York, N. Y.

Editor:

We were very much interested in the compilation, in the September 5 issue of ELECTRIC REFRIGERATION NEWS, of names and other facts regarding the various manufacturers identified with the refrigeration industry. This information is of great value to us and we would like to order five additional copies of this particular issue. If you will let us know the price for these additional copies, we will send you our check by return mail.

We note that you plan to publish in a later issue additional information on refrigeration manufacturers. If it is possible, we should appreciate your marking your records to indicate that we would also like five copies of any subsequent issues giving similar information. We could then include the cost of the second group of additional copies in sending you our check, if you will let us know the exact amount involved.

We might add that your paper is carefully read by all our executives, within twenty-four to forty-eight hours after it is received each week. In handling a substantial volume of installment paper covering domestic and commercial refrigeration, as well as air-conditioning equipment, it is essential that we keep fully informed as to new developments in these industries at all times. Your interesting weekly enables us to learn all of the salient facts with regard to new developments immediately, without having to wade through a lot of unnecessary information.

W. R. BENTLEY,
Assistant Mgr., New Business Dept.

Air-Conditioned Home

Jackson Bros., Boesel & Co.
26 Broadway
New York, N. Y.

Editor:

If consistent with your policy will you kindly tell me what system of air conditioning you adopted for the office-home described in the August 29 issue of ELECTRIC REFRIGERATION NEWS. Within the next year I expect to be interested in a home installation and this naturally arouses interest in your project.

A. G. BOESEL,
P.S. If you can do so will you please state the name of the manufacturer of each unit in the air-conditioning outfit.

Answer: In the August 29 issue of ELECTRIC REFRIGERATION NEWS you will find the system of air conditioning adopted for the converted home which now houses the News described in detail. The name of the manufacturer of each unit in the air-conditioning system is mentioned in the body of the description. Details of the system are not only given close attention in the article, but are told in numerous pictures as well.

More Corporate History

Servel Sales, Inc.
Evansville, Ind.

Editor:

Your digest of the corporate history of the Refrigeration Industry, appearing in the Sept. 5 issue of ELECTRIC REFRIGERATION NEWS, was of considerable interest to the writer for the reason that I consider myself in some respects, an "old-timer." Possibly you will be interested in the early history of the companies with which the writer has been associated, not because these companies were of any consequence themselves, but of the eventual outcome of the developments under their regime.

The machine now being manufactured by the Sunbeam Electric Mfg. Co. of this city, had its origin out on the West Coast in Los Angeles in the year 1920 when the Home Ice Machine Co. was formed.

A Mr. George Cuthbert promoted the project. A four vaned rotary compressor was used in the Home Ice Machine and while the entire project had the earmarks of a stock selling proposition, those of us in the development end, developed the machine to a point where it was a fairly successful operating piece of mechanism.

That organization eventually collapsed and Mr. Joe Cuthbert, brother of George, moved the organization to Oakland, Calif., where the Refrigeration Machine Co. was formed and a machine known as the "Shasta" was manufactured. In that stage of the development, we entered the semi-commercial field, developing equipment having an approximate capacity of 300 lbs. I.M.E. per 24 hours. Otherwise, the machine was very similar to the Home Ice Machine and incidentally, from the start, sulphur dioxide was used as the refrigerant.

When the Refrigeration Machine Co. ceased functioning for want of capital, the thing was revised again in Los Angeles and emerged as the California Refrigeration Mfg. Co., having an address on San Fernando Road, Los Angeles. That was in the year 1923. The machine was known as the "Zero-Aire."

During this third stage of this particular machine's development, we made considerable strides and whereas we did develop a small household machine of high efficiency, our efforts were largely towards the commercial end, and rather large equipment was developed. The largest, was one having an approximate I.M.E. capacity of 1,000 lbs. per 24 hours. A great number of these installations were made throughout southern California, as far north as Fresno, and as far west as Yuma, Arizona.

As was the previous experience, this last company was not a huge profit maker, but we were able to create quite a dent in commercial sales in that area and this activity finally brought the matter to Mr. Tibbit's attention.

Eventual negotiations resulted in the project's good will, etc., being purchased by Mr. Tibbit and his associate, after which development work was moved to Chicago as your records will show.

I was prompted to write you in this manner, after reading the comments in your editorial in the Sept. 5 issue, in which you gave due credit to the investors who purchased stocks in companies developing electric refrigeration, when the industry was in its infancy.

There is no question but that millions were spent in this manner, but in the case of my own experience with the three companies above referred to, there would not have been much invested had it not been for the ballyhoo promoters and their "get-rich-quick" promises. I doubt whether investors were guided by real vision as much as by lure of huge profits.

It is true that someone must pay for that development period in every industry but I sincerely hope that air conditioning, that industry that has an even greater future than electric refrigeration did in 1920, can be spared some of the abuses and mis-handling that was true of the development of the electric refrigeration industry.

C. L. OLIN, Service Manager.

Proud of Bound Volumes

Rex Mfg. Co., Inc.
Connersville, Ind.

Editor:

We wish you to know that we received promptly Volume 11 of ELECTRIC REFRIGERATION NEWS, bound in the usable fashion and it has been carefully perused and placed on the table in the center of our lobby. We keep these volumes on this table so that all of our visitors may have an opportunity of looking through them while they have to wait to see the parties they come to see.

We are proud to have these volumes accessible to our visitors, most of whom are directly interested in some feature of refrigeration.

C. C. HULL, President.

Makers of Gas Masks

The Mathieson Alkali Works (Inc.)
250 Park Ave., New York City

Editor:

I have just been looking for a directory of gas mask manufacturers and have not been able to find it in your DIRECTORY or in all the others that I have available. It has occurred to me that you might well add such a section to your DIRECTORY as there are many occasions when people want to know the names of several gas mask manufacturers. If you include such a section in your next volume it will, in my opinion, be extending an additional service to your clients, and it will also open for you prospects of new advertisers in your DIRECTORY and your other publications. This is merely a friendly suggestion which may have some interest to you.

R. J. QUINN,
Assistant manager of sales.

Answer: Manufacturers of gas masks are listed on page 289 of the DIRECTORY under "Safety Appliances."

Helpful Wives

Home Appliance Sales Co.
1515 State St.
East St. Louis, Ill.

Editor:

Mentioned to my wife this morning that I had not received your most valuable "News" since Aug. 15, and that I was going to drop you a line, whereupon she asked me if I had re-mitted, and though needless to say it was forgotten, nevertheless such is the case. Enclosed please find money order.

E. O. NEUBER, Manager.

Editor's Note: Commented Jean H. Adams, manager of the subscription department, upon reading this letter:

"If more of our subscribers had wives like this—we would have fewer complaints."

AIR CONDITIONING

EH&FA Will Exhibit Air Conditioning

CHATTANOOGA, Tenn.—The Electric Home & Farm Authority's Chattanooga display of electrical household equipment, to be opened Sept. 20 in the James building, will offer a continuous working demonstration of air conditioning as it is applied to business and to homes.

Two Westinghouse RW-12 condensing units and four ES-62 air-conditioning units are the heart of the system which supplies the ground floor showrooms with conditioned air, cooled in summer and heated in winter. Business men will find in this installation an example of thorough air conditioning adapted to a variety of display and business requirements.

Air conditioning for homes and small offices is demonstrated by a smaller "Mobile" unit, part of the permanent display. This unit will be in operation so that visitors may see it as it would work in their homes and offices.

The condensing units and air conditioners are installed slightly above what normally would be the second floor level. A steel and concrete vault now out of use provided an ideal foundation.

The condensing units are powered by 15-hp. motors. The complete unit is mounted on springs for balance and silence. Freon refrigerant lines lead from the compressors to the four air conditioners.

These are so arranged that one, two, three, or four may be used at will. Either or both of the non-automatic compressors may be used.

It is planned to hold the interior temperature at 10° F. below the outside temperature in summer, and to lower the interior relative humidity substantially, keeping it 50 per cent. All incoming air, winter and summer, is sucked through cleaning chambers.

Winter temperatures and humidity will be controlled automatically. Two of the four available steam coils—one coil in each air conditioner—will warm the air. Steam will be supplied from the building's central heating plant. Thermostats will control the air flow across the coils.

Winter humidity will be regulated by a humidistat placed in the show room and connected electrically to the humidifiers in the air conditioners. These humidifiers consist essentially of water jets spraying through the air flow. The humidistat, varying as the humidity of the conditioned air varies, turns these jets on or off. Several complications confronted the Westinghouse and TVA engineers who designed and installed the system.

Suction systems were needed to expel air from some parts of the floor while maintaining a continuous circulation in other parts. The displays include a complete laundry and kitchen, from which air is to be expelled. "Make-up" or replacement air—about 2,500 cu. ft. a minute—is to be drawn through a window near the ceiling level to replenish the supply in constant circulation through the main showroom.

Four main ducts lead from the conditioners to the display spaces. One feeds four vents at the top and rear of the main showroom, two others supply each of the sides, and another supplies the kitchen, laundry, and auditorium.

This variety of uses for the spaces conditioned by the system affords an unusually complete demonstration of air conditioning's possible applications.

Cost Accountants to Meet Only in Air Cooled Rooms

BOSTON—Allen C. Brett, treasurer of Hood Rubber Co. and president of the Boston chapter of the National Association of Cost Accountants, stated that the 1935 convention of the latter organization, to be held in Boston, will go to an air-conditioned hotel and he expects much better attendance at technical sessions and more sustained interest in the discussions as a result.

Stuart C. McLeod, secretary and business manager of the organization, feels that the development of air conditioning during the past few years has made hotels for conventions obsolete unless they provide assembly rooms so equipped.

The board of directors of the National Association of Cost Accountants adopted a resolution to the effect that they will hold no future convention in a hotel which does not provide an air-conditioned assembly hall.

Oil Burner Industry To Elect Code Authority

NEW YORK CITY—Members of the oil burner industry are being notified of a forthcoming election of the Code Authority to govern the oil burner industry under the NRA code of fair competition. The election will be held in conformity with a method of election approved Aug. 31 by the administrator.

The Code Authority after Oct. 1, 1934, will consist of nine members as follows: five representatives of manufacturer members of the industry and four representatives of dealer members of the industry elected by members of the industry.

Of the nine representatives of members of the industry, there shall be at least one manufacturer representative and one dealer representative from each of the following four areas. The ninth member shall be a manufacturer representative selected from any one of the four areas.

Area 1 shall consist of the following states: Maine, Massachusetts, New Hampshire, Connecticut, Vermont, Rhode Island, New York, Delaware, New Jersey, Ohio, Pennsylvania, West Virginia.

Area 2 shall consist of the following states: Nebraska, Illinois, Michigan, Wisconsin, Indiana, Kansas, Minnesota, Kentucky, Iowa, North Dakota, Missouri, South Dakota.

Area 3 shall consist of the following states: Maryland and Washington, D. C., South Carolina, Virginia, Tennessee, North Carolina, Georgia, Florida, Arkansas, Alabama, Louisiana, Mississippi, Texas.

Area 4 shall consist of the following states: Montana, Oklahoma, Wyoming, New Mexico, Colorado, Arizona, Utah, Oregon, Idaho, Nevada, Washington, California.

Each of the nine representatives of members of the industry shall have his principal place of business within the area from which he is elected.

Members of the Code Authority shall hold office for one year from Oct. 1, 1934, or until the termination of the Industrial Recovery Act if prior to such period termination, or until their successors have been elected and/or selected and shall have qualified. The five representatives of manufacturer members may organize as a manufacturer division Code Authority, to act on manufacturer problems purely. The four representatives of dealer members may organize as a dealer division of the Code Authority, to act on dealer problems purely. As there is an even number of dealer representatives provided for, in the case of a tie vote on any matter, the subject shall be referred to the Code Authority, sitting as a whole.

In addition to membership as above provided, there may be three members, without vote, to be known as Administration members, to be appointed by the Administrator to serve for such terms as he may specify.

Nominees for the new Code Authority as nominated by the existing Code Authority are as follows:

Area No. 1. For manufacturer representative: R. G. Whipple, Inc., Springfield, Mass.; Eugene C. Clarke, Bethlehem Foundry & Machine Co., oil burner division, Bethlehem, Pa. For dealer representative: C. R. Kahn, Queen Petro Co., Inc., Jamaica, N. J.; Alfred Buckley, Buckley & Scott, Inc., 137 Broad St., Providence, R. I.

Area No. 2. For manufacturer representative: J. H. Hirsch, Automatic Burner Corp., Chicago, Ill.; J. A. Latner, Century Engineering Corp., 213 Fourth Ave., Cedar Rapids, Iowa. For dealer representative: A. K. Perego, Perego Corp., Milwaukee, Wis.; R. S. Porter, Belden-Porter Co., 65 North 17th St., Minneapolis, Minn.

Area No. 3. For manufacturer representative: A. J. Fleischmann, May Oil Burner Corp., Baltimore, Md.; H. K. Hyle, Hyle Oil Burner Co., 2736 Pennsylvania Ave., Baltimore, Md. For dealer representative: William Conradis, William Conradis Co., Inc., Washington, D. C.; M. M. Oppenheimer, Oil Heat, Inc., 1123 North Charles St., Baltimore, Md.

Area No. 4. For manufacturer representative: Nelson S. Hayward, Ray Burner Co., San Francisco, Calif.; A. C. Jenkins, Jenkins Engineering Co., 518 Virginia St., Seattle, Wash. For dealer representative: A. Michael, Pacific Century Co., Portland, Ore.; T. A. Foster, Foster Auto Supply Co., 1550 Broadway, Denver, Colo.

For manufacturer representative at large: J. J. Donovan, air-conditioning department, General Electric Co., 570 Lexington Ave., New York City; W. F. Brannan, Anchor Post Fence Co., oil burner division, Eastern Ave. & Kane St., Baltimore, Md.

To be valid the ballot must be returned to the secretary of the Oil Burner Code Authority, 342 Madison Ave., New York, N. Y., on or before Sept. 29, 1934.

Meetings will be held in the four areas on Tuesday, Sept. 18, at 2 p. m. as follows: Area No. 1—General Heat & Appliance Co., 94 Massachusetts Ave., Boston; Area No. 2—Becker Marsden Co., 3436 Lyndell Blvd., St. Louis; Area No. 3—Sherwood Bros., Inc., 1122 North Charles St., Baltimore; Area No. 4—Rotary Oil Burner Co., 4575 Horton St., Oakland, Calif.

At these meetings nominations other than those made by the Code Authority may be made from the floor. Following this action ballots should be marked and returned promptly to the Code Authority secretary, 342 Madison Ave., New York City.

Libbey-Owens-Ford Designs Window for Conditioned Homes

TOLEDO—A new type of double glazed window, known as Thermopane, which is said to reduce heat loss through windows and to prevent frosting in cold weather, is being acquired by the Libbey-Owens-Ford Glass Co. through a newly organized subsidiary, The Thermopane Co., it was announced by John D. Biggers, president of the parent company.

The product consists of two panes of glass so fitted to each window sash that it provides a dehydrated air space between and reduces the flow

of heat and cold, Mr. Biggers said. The device has been applied successfully in solving problems of air conditioning, according to a statement made by Mr. Biggers.

Tests conducted by Libbey-Owens-Ford Glass Co. engineers showed that the new principle saves about 50 per cent of the usual heat loss through windows. The engineers also predicted that the double glazing idea will be used widely in the refrigeration field, particularly in refrigerated display cases employed in grocery and meat markets.

In making the announcement, Mr. Biggers said that the Libbey-Owens-Ford Glass Co. has completed arrangements to acquire the business, patent rights, and good will of Charles D. Haven of Milwaukee. Mr. Haven will be president and head of the firm.

New KEROTEST REFRIGERATION VALVES you should know

TYPE 277

Extra Heavy Liquid Receiver Valve with Seal Cap—available in 1/4" female pipe side outlets and 1/4" and 3/8" male pipe bottom outlets.

TYPE 54

Liquid Indicator—used extensively on commercial lines carrying liquid refrigerant. Liquid flows under heavy annealed sight glass and the presence of bubbles indicates a shortage of refrigerant in the system.

TYPE 147-A

Forged Brass Diaphragm Packless Globe Valves 1/8" to 1/2" pipe tap inclusive. Used principally on pipe lines for charging units or storage and shipping containers.

TYPE 216

Evaporator Liquid Valve with seal cap—tapped to fit liquid strainers and with 1/4" male pipe outlet.

TYPE 82

Small Service Drum Valve designed for usage where overall height must be at a minimum . . . widely used by producers of refrigerant gases on their small containers. Fusible metal safety device to conform to Interstate Commerce requirements supplied when specified.

TYPE 157*

Diaphragm Packless Forged Steel Angle Valve with 1" side and bottom female outlets made for new air conditioning installations.

TYPE K-1

Fitting designed to adapt outlet connections of Large Gas Drum Valves for convenient use with 1/4" to 1/2" OD copper tubing.

TYPE 220

Evaporator Suction Valve with seal cap—ammonia type gasket joint—mounting flange drilled for 4 holes.

TYPE 136

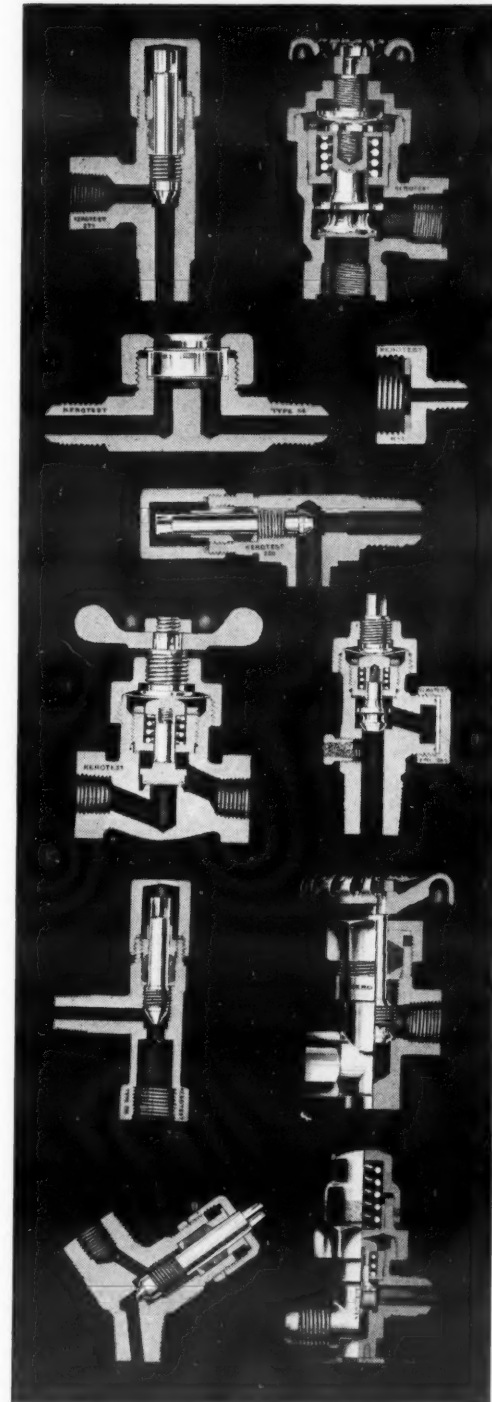
Diaphragm Packless Large Gas Drum Valve suitable for use on drums containing all modern refrigerants except ammonia. Supplied with 165° F. Fusible Metal Safety Device as required by Interstate Commerce Commission.

TYPE 447*

Two Way Packed Backseating Valve with Handwheel. Has unrestricted openings equal to 1/2" Iron Pipe or 3/4" OD copper tubing.

TYPE 45

Pressure Relief Valve to prevent overload caused by fire, insufficient capacity and overcharging—relieves to low side or to atmosphere at 205 lbs. and closes again at 165 lbs. —1/4" to 1/2" SAE flare connections.



A full, unrestricted flow is a feature of all Kerotest Refrigeration Valves . . . so designed that the diaphragm or packing may be exposed for inspection or possible replacement while under pressure or in service without loss of refrigerant.

*End connections can be made for Sweat Tube Joints.

KEROTEST MANUFACTURING CO. . . PITTSBURGH, PA.

LOCAL REPRESENTATIVES

(Stocks Maintained for Immediate Delivery)

Atlanta, Ga.285 Marietta St.
J. M. Tull Rubber & Supply Co., Inc.
Baltimore, Md.108 South St.
Clendenen Bros., Inc.
Boston, Mass.145 High St.
A. E. Borden Co.
Buffalo, N. Y.64 Peabody St.
Root Neal & Co.
Cambridge, Mass.614 Memorial Drive
Melchior, Armstrong, Dessau Co., Inc.
Chicago, Ill.1342 Washington Blvd.
Kerotest Manufacturing Company
Cincinnati, OhioBurbank St.
Merkel Bros. Co.
Cleveland, Ohio1748 E. 22nd St.
Williams & Co., Inc.
Dallas, TexasJackson & Pearl St.
The Electromotive Company
Decatur, Ill.133 Williams St.
Field & Shorb Co.
Denver, Colo.14th at Lawrence
The Auto Equipment Co.
Des Moines, Ia.W. 11th & D.M.U.R.R.
C. L. Percival Co.
Detroit, Mich.1203 Stanley Ave.
J. M. Obere, Inc.

Fernwood, Miss.711 N. Tangipahoa St.
Enoch Sales Co.
Greensboro, N. C.714 W. Market St.
Home Appliance Service Co.
Houston, Texas306 M & M Bldg.
D. C. Lingo Co.
Indianapolis, Ind.229 E. South St.
F. H. Langenkamp Co.
Kansas City, Mo.3033 Main St.
Forlund Pump & Machinery Co.
Los Angeles, Calif.1015 E. Sixteenth St.
Kerotest Manufacturing Company
Los Angeles, Calif.3109 Beverly Blvd.
Refrigeration Service, Inc.
Milwaukee, Wis.512 N. Water St.
Chase Brass & Copper Co., Inc.
Minneapolis, Minn.145 N. 10th St.
Chase Brass & Copper Co., Inc.
Montreal, Que., Canada637 Craig St.
Railway & Engineering Specialties, Ltd.
Newark, N. J.Jefferson & Chestnut Sts.
McIntire Connector Co.
New Orleans, La.813 Poydras St.
Enoch Sales Co.
New York, N. Y.300 Fourth Ave.
Melchior, Armstrong, Dessau Co., Inc.
New York, N. Y.43 Warren St.
Paramount Electrical Supply Co., Inc.

New York, N. Y.3075 Third Ave.
Actna Supply Co.
Philadelphia, Pa.1516 Callowhill St.
Melchior, Armstrong, Dessau Co., Inc.
Pittsburgh, Pa.901 Pennsylvania Ave.
Williams & Co., Inc.
Portland, Ore.200 No. 13th St.
Harrison Sales Co.
San Francisco, Calif.1077 Mission St.
California Refrigerator Co.
San Francisco, Calif.380 Brannan St.
Refrigerating & Power Specialties Co.
Seattle, Wash.314 Ninth Ave., No.
Harrison Sales Co.
Sioux City, Iowa2310 E. Eighth St.
National Refrigeration Service
Springfield, Mass.593 Main St.
Home Utilities Co.
St. Louis, Mo.3337 Market St.
Kerotest Manufacturing Company
Syracuse, N. Y.314 W. Fayette St.
Syracuse Supply Co.
Toronto, Ont., Canada82 Ontario St.
Railway & Engineering Specialties, Ltd.
Vancouver, B. C., Canada
Fleck Bros., Limited

FOREIGN REPRESENTATIVES

Australia235 Clarence St., Sydney, N.S.W.
F. C. Lovelock, Ltd.
Europe and South America
Melchior, Armstrong, Dessau Co., Inc.
300 Fourth Ave., New York, N. Y.
Puerto Rico
Refrigeration Supply Co.
P. O. Box 328, Puerto de Tierra, San Juan

KEROTEST

SPECIFICATIONS OF COMMERCIAL CONDENSING UNITS

Published on this page are specifications of commercial condensing units that arrived too late for publication in the last issue of Electric Refrigeration News.

Missing are specifications of Frigidaire units, which have been held up due to the absence from the home office of officials who must okay the release of such information.

It is hoped that Frigidaire specifications will be available for publication in the next issue.

The Lipman and Wurlitzer models are rated under A.S.R.E. standard conditions (suction pressure corresponding to a saturation temperature of 5° F., discharge pressure corresponding to 86° F.). The Froskist models are rated under a set of special conditions.

Lipman

General Refrigeration Sales Co., Beloit, Wis.

Model No.	32	52	53	72	Methyl Chloride Units	102	103	152	153	202	203
Refrigeration Capacity											
In lbs. I.M.E. per 24 hours	310	585	620	760	860	950	1090	1320	1525	1800	2065
Compressor Specifications											
Motor size (hp.)	1/4	1/4	1/4	1/4	1	1	1 1/4	1 1/4	2	2	2
Compressor speed (r.p.m.)	325	250	265	320	350	400	460	310	360	425	490
No. of cylinders	2	2	2	2	2	2	2	2	2	2	2
Bore (in.)	1 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
Stroke (in.)	2	2	2	2	2	2	2	3 1/4	3 1/4	3 1/4	3 1/4
Quantity of refrigerant in system (lbs.)	4	6	6	6	6	8	8	10	10	12	12
Quantity of lubricant in system (qts.)	2	4	4	4	4	4	4	4	4	4	4
Overall Dimensions (in.)											
Width	25 1/4	31 1/4	31 1/4	31 1/4	31 1/4	31 1/4	31 1/4	34 1/4	34 1/4	34 1/4	34 1/4
Depth	16	19	18	19	20	19	20	21 1/4	24	22 1/4	24
Height	17 1/4	23 1/4	23 1/4	23 1/4	23 1/4	23 1/4	23 1/4	25 1/4	25 1/4	25 1/4	25 1/4

Model No.	41	51	61	81	101	151	210	310	410	1110	710-V
Compressor Specifications											
Motor size (hp.)	1/4	1/4	1/4	1/4	1	1 1/4	2	3	5	10	7 1/2
Compressor speed (r.p.m.)	450	450	450	450	350	450	350	450	270	235	400
No. of cylinders	1	1	1	1	1	1	2	2	2	2	2
Bore (in.)	1 1/4	1 1/4	1 1/4	1 1/4	2 1/4	2 1/4	2 1/4	2 1/4	3 1/4	4 1/4	3 1/4
Stroke (in.)	1 1/4	1 1/4	1 1/4	1 1/4	2 1/4	2 1/4	2 1/4	2 1/4	3 1/4	5	3 1/4
Quantity of refrigerant in system (lbs.)	5 1/2	6 1/2	10	12	12 1/2	20	25	35	50	135	75
Overall Dimensions (in.)											
Width	22 1/4	25	30 1/4	30 1/4	36 1/4	36 1/4	43 1/4	52 1/4	56	68 1/4	57 1/4
Depth	14 1/4	19	19 1/4	19 1/4	21 1/4	21 1/4	20 1/4	20 1/4	26 1/4	30	26 1/4
Height	20 1/4	21 1/4	24 1/4	26 1/4	33 1/4	36	46 1/4	46 1/4	53	66	55 1/4

Model No.	CA33	EA33	FA33	FW33	HA33	HW33	IA33	IW33
Refrigeration Capacity								
In lbs. I.M.E. per 24 hours	168	240	355	415	653	700	818	979
Compressor Specifications								
Motor size (hp.)	1/4	1/4	1/4	1/4	1/4	1/4	1	1
Bore (in.)	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2 1/4	2 1/4
Stroke (in.)	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Compressor speed (r.p.m.)	430	490	540	590	325	...	400	470
No. of cylinders	1	2	2	2	2	2	2	2
Quantity of refrigerant in system (lbs.)	2	3	3	3	8	8	8	8
Overall Dimensions (in.)								
Width	22 1/4	24	29 1/4	32 1/4	36	36	36	45
Depth	13 1/4	18	18	18	23 1/4	23 1/4	23 1/4	23 1/4
Height	16 1/4	20 1/4	21	21	26 1/4	27 1/4	26 1/4	27 1/4
Model No.	JA	JW	KW	MW	NW	OW		
Refrigeration Capacity								
In lbs. I.M.E. per 24 hours	1020	1392	2016	4812	8160	9120		
Compressor Specifications								
Motor size (hp.)	1 1/2	2	5	7 1/2	10			
Bore (in.)	2 1/4	2 1/4	2 1/4	3 1/4	4			
Stroke (in.)	1 1/4	1 1/4	3	4 1/4	4 1/4			
Compressor speed (r.p.m.)	540	660	400	480	345	400		
No. of cylinders	2	2	3	3	3			
Quantity of refrigerant in system (lbs.)	8	8	12	12	16	16		
Overall Dimensions (in.)								
Width	36	36	51	51	56	56		
Depth	23 1/4	23 1/4	23	23 1/4	28	28		
Height	26 1/4	27 1/4	29	29 1/4	35	35		

Wurlitzer

The Rudolph Wurlitzer Mfg. Co., North Tonawanda, N. Y.

Model No.	CA33	EA33	FA33	FW33	HA33	HW33	IA33	IW33
Refrigeration Capacity								
In lbs. I.M.E. per 24 hours	168	240	355	415	653	700	818	979
Compressor Specifications								
Motor size (hp.)	1/4	1/4	1/4	1/4	1/4	1/4	1	1
Bore (in.)	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2 1/4	2 1/4
Stroke (in.)	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Compressor speed (r.p.m.)	430	490	540	590	325	...	400	470
No. of cylinders	1	2	2	2	2	2	2	2
Quantity of refrigerant in system (lbs.)	2	3	3	3	8	8	8	8
Overall Dimensions (in.)								
Width	22 1/4	24	29 1/4	32 1/4	36	36	36	45
Depth	13 1/4	18	18	18	23 1/4	23 1/4	23 1/4	23 1/4
Height	16 1/4	20 1/4	21	21	26 1/4	27 1/4	26 1/4	27 1/4

Model No.	JA	JW	KW	MW	NW	OW
Refrigeration Capacity						
In lbs. I.M.E. per 24 hours	1020	1392	2016	4812	8160	9120
Compressor Specifications						
Motor size (hp.)	1 1/2	2	5	7 1/2	10	
Bore (in.)	2 1/4	2 1/4	2 1/4	3 1/4	4	
Stroke (in.)	1 1/4	1 1/4	3	4 1/4	4 1/4	
Compressor speed (r.p.m.)	540	660	400	480	345	400
No. of cylinders	2	2	3	3	3	
Quantity of refrigerant in system (lbs.)	8	8	12	12	16	16
Overall Dimensions (in.)						
Width	36	36	51	51	56	56
Depth	23 1/4	23 1/4	23	23 1/4	28	28
Height	26 1/4	27 1/4	29	29 1/4	35	35

Model No.	JA	JW	KW	MW	NW	OW
Refrigeration Capacity						
In lbs. I.M.E. per 24 hours	1020	1392	2016	4812	8160	9120
Compressor Specifications						
Motor size (hp.)	1 1/2	2	5	7 1/2	10	
Bore (in.)	2 1/4	2 1/4	2 1/4	3 1/4	4	
Stroke (in.)	1 1/4	1 1/4	3	4 1/4	4 1/4	
Compressor speed (r.p.m.)	540	660	400	480	345	400
No. of cylinders	2	2	3	3	3	
Quantity of refrigerant in system (lbs.)	8	8	12	12	16	16
Overall Dimensions (in.)						
Width	36	36	51	51	56	56
Depth	23 1/4	23 1/4	23	23 1/4	28	28
Height	26 1/4	27 1/4	29	29 1/4	35	35

Model No.	JA	JW	KW	MW	NW	OW
Refrigeration Capacity						
In lbs. I.M.E. per 24 hours	1020	1392	2016	4812	8160	9120
Compressor Specifications						
Motor size (hp.)	1 1/2	2	5	7 1/2	10	
Bore (in.)	2 1/4	2 1/4	2 1/4	3 1/4	4	
Stroke (in.)	1 1/4	1 1/4	3	4 1/4	4 1/4	
Compressor speed (r.p.m.)	540	660	400	480	345	400
No. of cylinders	2	2	3	3	3	
Quantity of refrigerant in system (lbs.)	8	8	12	12	16	16
Overall Dimensions (in.)						
Width	36	36	51	51	56	56
Depth	23 1/4	23 1/4	23	23 1/4	28	28
Height	26 1/4	27 1/4	29	29 1/4	35	35

Froskist

Parker Mfg. Co., 2625 Santa Fe Ave., Los Angeles, Calif.

Model Nos.	1020	420	1220	1425D	1625D	1633D	1625	1633	2033	2250	4075	6010	6015	6002	1002	1003
Compressor Specifications																
Refrigeration capacity	180	146	184	265	361	361	361	400	525	663	942	1253	1484	1566	2305	2890
Using SO ₂	254	206	159	374	508	508	508	563	738	935	1327	1767	2086	2209	3251	4065
Using CH ₂ Cl or Freon	254	206	159	374	508	508	508	563	738	935	1327	1767	2086	2209	3251	4065
Motor size (hp.)	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
Compressor speed (r.p.m.)	450	450	450	450	450	450	450	500	500	500	425	360	425	450	360	450
Bore (in.)	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
Stroke (in.)	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
No. of cylinders	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Charge of refrigerant (lbs.)	1	1	1	1	1	1	1	1	2	2	3	3	3	3	4	4
Pump down capacity of receiver (using methyl chloride)	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	6 1/2	15	15	20	20	20	20	30	30
Oil in system (pts.)	1	1	1	1	1	1	1	1	1 1/4	1 1/4	5	5	5	5	8	8
Overall Dimensions (in.)																
Width	16	16	16	16	16	16	18	18	18	18	24	24	24	24	31	31
Depth	21	21	21	21	21	21	26	26	29	29	33	33	33	33	37	37
Height	16	16	16	16	16	16	18	18	19	19	28	28	28	28	29	29

Model Nos.	DW 2250	DW 4075	DW 6010	DW 6015	DW 6002	DW 1002	DW 1003	Water Cooled DW 2006	Water Cooled DW 4075	W 6010	W 6015	W 6002	W 1002	W 1003	W 2007 1/2	W 20010
Compressor Specifications																
Refrigeration capacity*	772	1054	1286	1525	1614	2375	2970	3885	1054	1286	1525	1614	2375	2970	4670	6625
(Using SO ₂)	1090	1474	1813	2148	2275	3349	4186	5495	1474	1813	2148	2275	3349	4186	6614	9368
(Using methyl or Freon)	1090	1474	1813	2148	2275	3349	4186	5495	1474	1813	2148	2275	3349	4186	6614	9368
Motor size (hp.)	1/4	1/4	1/4	1 1/4	2	2	3	5	1/4	1	1 1/4	2	2	2	3 1/2	10
Compressor speed (r.p.m.)	500	425	360	425	450	360	450	250	425	360	425	450	360	450	300	425

SERVICE

Thermostats & Service Methods For Conventional Majestics

Second Installment on Service of 'Open Type' Majestic, Describing Thermostats & Installation Practices

LAST week's issue of the NEWS presented a detailed, illustrated description of the two condensing units, models 50 and 51, which were used in the Majestic Standard models (not sealed), built by Grigsby-Grunow Co. of Chicago until this past spring when that manufacturer was adjudged bankrupt. This week's issue presents a description of the four different types of thermostats used on Majestic standard models, and installation practices.

Next week the NEWS will publish instructions for performing the various service operations on these machines, a thorough analysis of various service complaints, with their remedies, and a summarizing chart to help visualize service problems on Majestic Standard models.

Service men are urged to use all of the valuable information presented in these three issues as a reference for Majestic service work. For a complete understanding of service problems in connection with these machines, study all three articles together.

Type 'SM' Thermostat

The type "SM" thermostatic control (see Fig. 1) consists of a bulb fastened to a syphon bellows by means of an 1/8-in. copper tube. This bulb, tube and bellows is charged with a vapor and sealed having no connection with the refrigerant in the system.

Any change in temperature therefore will cause the bellows to expand or contract. The bellows is installed in a toggle switch with a balancing spring that tends to keep the bellows in a closed position.

A cross arm is placed between the bellows head and the spring. Movement of this arm will open and close the toggle switch, therefore, by increasing or decreasing the spring pressure, the control may be made to open or close at predetermined temperatures.

Accordingly, when the thermo-bulb becomes warm, the pressure is raised in the bellows overcoming the spring tension and the switch closes. When the thermobulb becomes cold, the pressure is reduced in the bellows, thereby releasing the tension of the spring and the switch opens.

The function of the thermostatic control is to maintain the desired temperature in the refrigerator. This is accomplished by the effect of temperature changes on the pressure of the gas enclosed in the bellows as-

sembly as explained above, which opens and closes the electric circuit, thereby starting and stopping the motor.

Mounting

Mount the thermostat securely to the control box base with four 8-32 screws. Run the tube under the belt and up to the clamp on top of the liquid receiver. Tape tube to the flexible tube at intervals of about nine inches with white tape.

Clamp bulb firmly to cooling coil. If bulb is loose in the mounting clamp, erratic operation of the thermostat may be expected due to varying heat transfer from the cooling coil to the bulb. It is important that no part of the capillary tube touches any part of the evaporator except the hanger.

Pointer

The pointer may be used to adjust the operating range. It is held on the squared end of the range shaft by means of two machine screws.

Temperature Adjustment

The temperature range is adjusted by moving the pointer. A movement of the pointer from position No. 1 to position No. 8 lowers the operating range approximately six degrees.

When it is so desired, a change may be made in the temperature range by setting pointer at No. 5, then turning the pointer as many points on the dial as is required, remove the pointer and replace it at No. 5, then turn pointer back to No. 1 or normal position.

To raise the box temperature, turn the pointer to the left and to lower the box temperature, turn the pointer to the right.

Altitude

No change in temperature settings should be required for elevation up to three thousand feet. However, it may be necessary to raise the setting approximately three-fourths degree for each additional one thousand feet of elevation.

Contacts

Should contacts become badly

burned, the pigtail is unsoldered from both the movable contact and the stationary contact panel and these two assemblies removed and replaced. The only adjustment necessary is to see that the split nut on the differential screw is in approximately the same place on the new assembly as it was on the old.

Short Cycles

Short cycles may be due to the capillary tube of the thermostat touching some point of the evaporator colder than the bulb. The thermostat is compensated for the contact of the tube with evaporator hanger.

Long cycles may be caused by the thermostat bulb being loose in the clamp.

Will Not Cut In

If the thermostat remains in the open or "off" position and if slight pressure only is necessary to move the over center spring yoke (see Fig. 1) back and forth when the bulb is at room temperature, the charge has leaked out of the bellows assembly.

Replacement of Bellows

Equipment necessary for replacing bellows is two tall glasses of crushed ice and salt and an accurate mercury thermometer. Proceed as follows:

1. Loosen lock nut on old assembly.
2. Back off threaded collar on inside of switch body until it is against bellows fitting.
3. Remove old assembly by springing it out of place with thumb.
4. Remove locknut and lockwasher from new assembly. (Do not remove from shipping clamp.)
5. Cool bulb of new assembly to 10° F. in ice and salt and remove from shipping clamp.
6. Screw threaded collar on bellows fitting and place in switch. (Do not remove bulb from crushed ice.)
7. Raise temperature in glass to

Majestic 'FV' Control

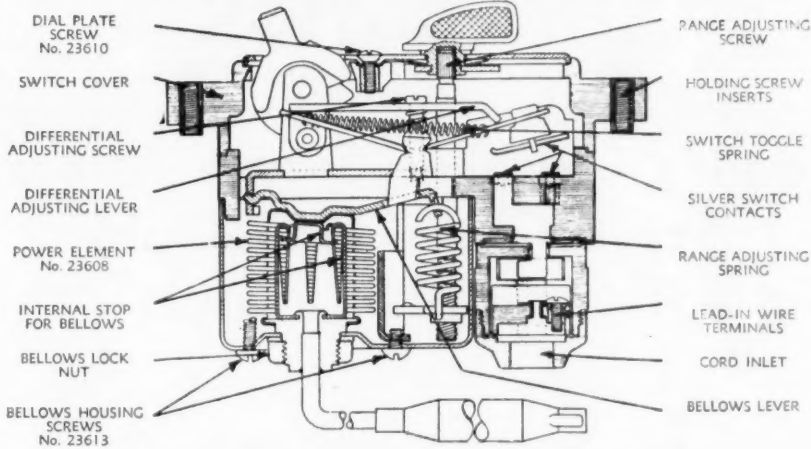


Fig. 2—Diagram of type FV thermostatic control.

32° F. exactly and hold for five minutes.

8. Screw out threaded collar, pushing bellows in until switch kicks "on."

9. Replace locknut and lockwasher and tighten.

10. Place bulb in second glass at exactly 22° F. and contacts should open. If they do not, check upper temperature again.

If range is too wide turn split nut down 1/2 turn and repeat tests.

Type 'FV' Thermostat

Mounting

Mount the Type "FV" thermostat switch (see Fig. 2) securely to the rear of the evaporator front. The brass inserts in the mounting ears of the thermostat are tapped for 8-32 screws.

Clamp the thermostat bulb firmly to the evaporator. It is important

that no part of the capillary tube touch any part of the evaporator. If the bulb is loose in the mounting clamp, erratic operation of the thermostat may be expected due to varying heat transfer from the evaporator to the bulb.

Operation

The temperature at the thermostat bulb affects the pressure in the power element. The thermostat switch operates when the temperature of the gas in the power element reaches the temperature at which the switch is adjusted to operate.

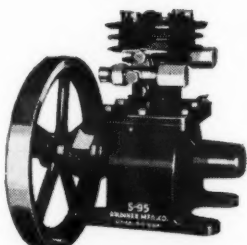
Dial Pointer

The dial pointer may be used to adjust the operating range. The pointer is permanently attached to the dial plate. For normal operation, the dial pointer should be set on position No. 1. In its operating position, the dial pointer fits onto the

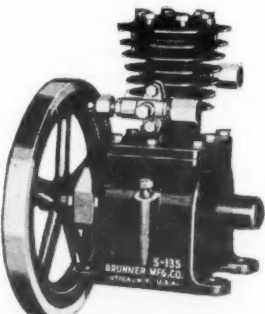
(Continued on Page 15, Column 1)

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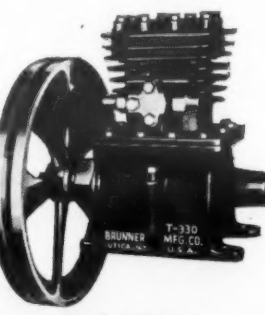
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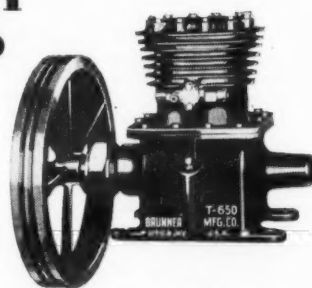
Model S-95
1/6 H.P. Compressor



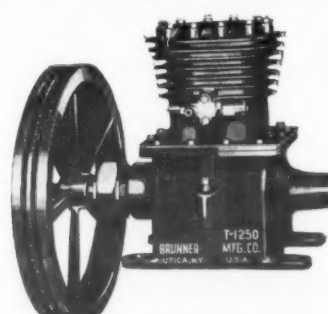
Model S-135
1/6-1/4 H.P. Compressor



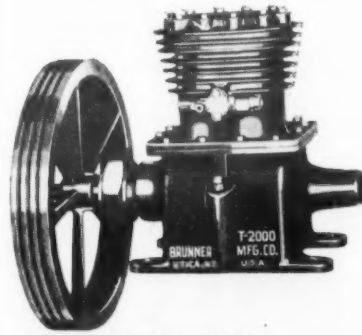
Model T-330
1/4-1/3-1/2 H.P. Compressor



Model T-650
3/4-1 H.P. Compressor



Model T-1250
1-1 1/2 H.P. Compressor



Model T-2000
2-3 H.P. Compressor

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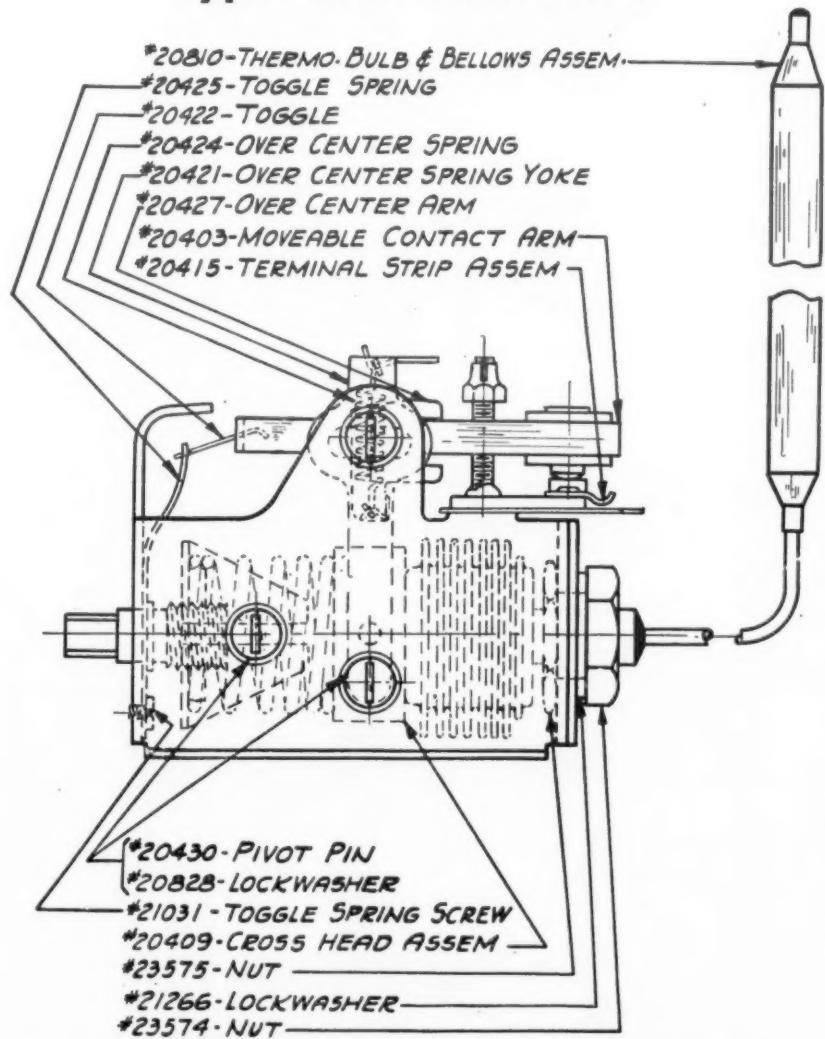


Fig. 1—Cross-sectional sketch of type SM thermostat.

STATISTICS

Polk's Consumer Survey Shows Saturation of Household Refrigeration Market

By A. J. Cutting

DETROIT — Interesting figures on the market for household mechanical refrigerators offered by new and replacement customers in various American cities are revealed by the nationwide Consumer Census conducted by R. L. Polk & Co., Detroit.

In addition, the returns from this survey present a classification of refrigerators according to brands owned, and also show the market furnished by families in various income classes. Although not presented here, similar information is available for various districts within the cities.

Polk's Consumer Census will eventually extend to all United States cities of 25,000 population and more. A small army of trained enumerators is being used by the Polk organization for the purpose of collecting data from women heads of American families. At the present time returns are available for 18 cities located in various sections of the country.

The information thus brought to light should help answer such questions as to which city markets are most highly saturated; what income classes have furnished the greatest market for refrigerators; which manufacturers have secured the largest volume of business in various territories; and the age in years of the refrigerators now in use in respective localities.

Families are grouped according to buying power in Classes A, B, or C under the Polk method of classification. Factors used in determining the status of a family are as follows: the average rent paid; whether or not the home is owned; whether the family has a telephone; ownership of such merchandise as radios, vacuum cleaners, electric washers, pianos, mechanical refrigerators; whether checking and saving accounts are maintained; the average insurance carried; whether an automobile is owned; the index rating of the district; and the evaluation of the district.

The method of classification used does not set rigid limits by requiring that Class A families be those who buy only higher priced merchandise, or that Class B families purchase only articles of medium price, or that Class C families are buyers of only the cheapest goods.

However, it does mean that a Class A family, on the average, buys expensive items, although it may pur-

chase some medium or cheaper priced articles.

By the same token, Class B or Class C families may buy some expensive articles, but their spending ability, on the average, places them in the medium or low priced groups, respectively.

In presenting the data, the total number of families in each city is given, this total being divided to show the number and percentage of families owning mechanical refrigerators, and those which do not.

The market saturation is thus based on the total number of families, saturation for the 18 cities varying from 6.496 per cent in San Pedro, Calif., to 23.338 in Hartford, Conn.

Saturation of electric refrigerators, only, is usually based on the total number of wired homes, but in this survey gas-operated refrigerators are also included, making it necessary to show saturation in terms of total number of families.

In the case of data covering ownership by make and age in years, the number of families owning refrigerators is taken as 100 per cent. In the matter of information covering Class A, B, and C families, the total num-

ber of families in the respective group is considered to be 100 per cent.

Ownership of mechanical refrigerators in each city is shown according to the number and percentage of various brands or makes owned. This breakdown indicates the portion of the saturated market which has been sold by various manufacturers. The relative standing, of course, shows a high degree of variation in the different cities.

In certain communities, local manufacturers, doing a business which is mainly sectional in nature, appear to have made a strong bid for refrigerator business.

Where any certain brand represents less than 1 per cent of the saturated market, it is classified under miscellaneous. Similarly, where a family owns a refrigerator and the brand is not mentioned, it is also included under the miscellaneous classification.

The division of refrigerators owned on the basis of age in years gives some insight into the extent of the future market for replacement business. It will be noted that in most of the cities a rather sizeable percentage of the refrigerators in use are more than four years old—a good many of the units probably being considerably older than four years.

The percentage of refrigerators which have been in use over four years varies from 6.061 per cent in San Pedro, Calif., to 38.967 per cent in Hartford, Conn.

The refrigeration industry is now generally considered to be nearing the period of its history when the replacement market will begin to assume a very definite importance.

An outstanding example of the importance of the replacement market is furnished by the automobile industry. According to reliable estimates, nearly 100 per cent of 1933 automobile sales were made to replace cars sold in previous years.

While the replacement market has not as yet assumed a high degree of

importance in the refrigeration field, the tabulation by age in years shows that a representative percentage of refrigerators are old enough that they will probably require replacement within the next several years.

The division of refrigerator ownership within Classes A, B, and C, gives some indication of where the greatest share of refrigerator buying power lies. In the past, Class A, the higher income group, has furnished the greatest market, relatively speaking, the percentage of saturation being highest in this group.

However, under the Polk rating, the great majority of families fall in Class B, the middle income group. Generally speaking, saturation in Class C is rather low, especially when compared with the other two groups.

R. L. Polk & Co. has for many years compiled and published city directories and mailing lists, being the largest concern in the country engaged in this type of business. Exclusive of government statistical bureaus—such as the Bureau of Census—no other organization has more experience in securing accurate data through house-to-house interviews. In assembling data for the Consumer Census, the samples taken were sufficiently large to present an accurate index to the situation in each city, for example, 90,000 families were interviewed in New York City.

Revere Copper & Brass Names 2 Vice Presidents

NEW YORK CITY—C. D. Dallas, president of Revere Copper & Brass, Inc., has announced the appointment of C. A. Macfie and C. C. Felton as vice presidents of the company, with offices at the executive headquarters in the New York Central building here.

Mr. Felton was formerly sales manager of Calumet & Hecla Consolidated Copper Co.

Insulite Co. Introduces 'Sealdslab' Insulation For Storage Rooms

MINNEAPOLIS—"Sealdslab" moisture sealed insulation, especially adaptable for use in freezers, meat, beer, and creamery coolers, milk cooling tanks, general cold storage rooms and in the air-conditioning field, has recently been introduced by The Insulite Co.

This new insulation has an established conductivity of 30 B.t.u. per square foot per degree F. temperature difference per hour, per one inch thickness.

It has a tensile strength averaging 200 lbs. per square inch, and it can be easily sawed without breakage, crumbling, or chipping.

Basic material is wood fibre, the fibres being firmly interlaced. Special asphalt treatment forms a complete seal or envelope, which not only acts as a waterproofing medium but also provides a durable surface and a foundation for the final asphalt coating as applied to the job.

Melco Representatives Make Sales Plans

NEW YORK CITY—To lay plans for the coming months' refrigeration replacement work and to push their companion line of oil burner parts, the entire sales force of the Melchior, Armstrong, Dessau Co. held a convention at Melco's new quarters at 300 Fourth Avenue, New York City, Sept. 4.

J. J. Marshall, general sales manager, presided and introduced various manufacturers whose new lines the company is about to develop.

Salesmen were present from the company branches in Boston, Philadelphia, and the Metropolitan area.

Polk Survey Analyzes Refrigeration Market and Usage in 18 Cities

	Santa Monica, Cal.		San Pedro, Cal.		Bridgeport, Conn.		Fresno, Cal. (City & Suburban)		San Diego, Cal.		Pittsburgh, Pa.		Indianapolis, Ind.		Richmond, Va.	
No. of families	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Do not own mechanical refrigerator	11,460	84.642	9,500	93.504	39,320	88.879	29,220	88.012	40,020	89.410	190,440	86.967	89,500	88.004	37,160	81.995
Own mechanical refrigerator	1,760	15.358	660	6.496	4,920	11.121	3,980	11.988	4,740	10.590	28,540	13.033	12,200	11.996	8,160	18.005
Makes owned:																
Frigidaire	540	30.682	220	33.333	1,360	27.642	1,140	28.643	980	20.675	12,160	42.607	6,100	50.000	3,500	42.892
General Electric	340	19.318	260	39.394	1,560	31.707	1,920	48.241	1,820	38.367	6,280	22.004	2,980	24.426	1,300	22.449
Kelvinator	280	15.909	...	...	...	...	...	...	...	...	3,540	12.404	1,140	9.344	740	9.069
Miscellaneous	600	34.091	180	27.273	2,000	40.651	920	23.116	1,940	40.923	6,560	22.985	1,980	16.230	2,080	25.490
Age in years:																
Under 1 year	180	10.227	260	39.394	1,200	24.390	1,300	32.663	1,520	32.067	10,580	37.071	2,480	20.328	2,560	31.373
1-2 years	240	13.636	100	15.151	980	19.919	820	15.578	1,040	21.941	6,080	21.303	1,640	13.422	1,300	15.931
2-3 years	500	28.409	200	30.303	780	15.854	860	21.608	720	15.130	4,540	15.907	1,920	15.738	1,580	19.363
3-4 years	420	23.864	60	9.091	820	16.667	820	20.603	720	15.190	3,500	10.512	1,640	13.443	1,020	12.500
Over 4 years	420	23.864	40	6.061	1,140	23.170	380	9.548	740	15.612	4,340	15.207	4,520	37.049	1,700	20.833
Class "A" families	740	100.000	240	100.000	2,260	100.000	1,720	100.000	1,900	100.000	11,280	100.000	5,880	100.000	2,340	100.000
Do not own mechanical refrigerator	320	43.243	120	50.000	740	32.744	960	55.976	1,040	54.747	42,553	45.553	2,660	44.482	820	35.043
Own mechanical refrigerator	420	56.757	120	50.000	1,520	67.256	760	44.024	860	45.253	7,027	62.447	3,220	55.518	1,520	64.957
Class "B" families	7,600	100.000	5,820	100.000	20,620	100.000	20,180	100.000	27,260	100.000	100,000	100.000	54,860	100.000	23,700	100.000
Do not own mechanical refrigerator	6,360	83.684	5,320	91.409	17,580	85.257	17,120	84.836	23,860	87.523	81,060	81.060	46,820	85.345	17,400	73.418
Own mechanical refrigerator	1,240	16.316	500	8.591	3,040	14.743	3,060	15.164	3,400	12.477	18,940	18.940	8,040	14.655	6,300	26.582
Class "C" families	3,120	100.000	4,100	100.000	21,360	100.000	11,300	100.000	15,600	100.000	107,700	100.000	40,860	100.000	19,280	100.000
Do not own mechanical refrigerator	3,026	96.985	4,060	99.025	21,000	98.315	11,120	98.407	15,380	98.590	104,580	97.103	40,020	97.944	18,940	98.237
Own mechanical refrigerator	100	3.205	40	.975	360	1.685	180	1.593	220	1.410	3,120	2.897	840	2.056	340	1.763

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	Charleston, W. Va.		Seattle, Wash.		Spokane, Wash.		Columbus, Ohio		New York, N. Y.	
No. of families	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Do not own mechanical refrigerator	21,000	84.476	103,360	81.869	36,960	90.855	78,840	84.602	1,803,300	80.872
Own mechanical refrigerator	3,260	15.524	18,740	18.131	3,980	9.145	13,140	15.398	444,960	19.128
Makes owned:										
Copeland	220	6.749	1,140	6.083	1,020	30.178	...	...	...	...
Electrolux	...	...	2,580	13.767	...	...	...	...	...	...
Frigidaire	900	27.607	9,740	51.574	820	24.260	4,180	34.432	10,360	29.542
General Electric	1,180	36.196	1,920	10.246	720	21.302	4,060	33.443	65,360	18.948
Kelvinator	460	14.110	1,120	5.977	...	...	1,540	12.685	26,920	7.804
Miscellaneous	500	15.338	2,240	11.953	820	24.260	1,560	12.850	47,440	13.753
Age in years:										
Under 1 year	1,380	42.331	1,720	9.178	420	12.426	2,400	19.769	142,920	41.433
1-2 years	720	22.086	2,820	15.043	780	23.077	2,320	19.110	83,660	24.253
2-3 years	540	16.564	3,300	17.609	720	21.302	2,860	23.559	57,140	16.565
3-4 years	220	6.749	3,180	16.969	740	21.893	2,060	16.969	31,520	9.167
Over 4 years	400	12.270	7,720	41.196	720	21.302	2,500	20.593	29,600	8.582
Class "A" families	980	100.000	6,380	100.000	1,920	100.000	5,880	100.000	78,700	100.000
Do not own mechanical refrigerator	360	36.735	2,960	46.395	2,820	51.042	2,820	47.710	19,560	24.981
Own mechanical refrigerator	620	63.265	3,420	53.605	940	48.958	3,240	55.290	59,040	75.019
Class "B" families	11,420	100.000	60,440	100.000	22,500	100.000	43,640	100.000	619,880	100.000
Do not own mechanical refrigerator	9,020	78.984	46,680	77.201	20,180	89.660	35,160	80.565	593,660	95.606
Own mechanical refrigerator	2,400	21.016	13,760	22.799	2,320	10.340	8,480	19.435	26,220	42.394
Class "C" families	8,600	100.000	36,540	100.000	12,540	100.000	29,340	100.000	1,044,720	100.000
Do not own mechanical refrigerator	8,360	97.210	35,000	95.786	12,420	99.043	28,920	98.569	1,045,040	99.598
Own mechanical refrigerator	240	2.790	1,540	4.214	120	.957	420	1.431	69,680	6.402

	Portland, Ore.		Harrisburg, Pa.		Glendale, Calif.		Alhambra, Calif.		Hartford, Conn.	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
No. of families	90,560		30,000		19,460		9,280		54,760	
Do not own mechanical refrigerator	70,460	77.805	24,280	80.933	15,520	79.753	8,220	88.578	41,980	76.662
Own mechanical refrigerator	20,100	22.195	5,720	19.067	3,940	20.247	1,060	11.422	12,780	23.338
Makes owned:										
Copeland			260	4.545					340	2.260
Dayton	260	1.293								
Electrolux	920	4.577								
Frigidaire	700	3.483	160	2.797					160	1.252
General Electric	8,140	40.498	940	16.434	1,080	27.411	200	18.868	5,020	39.280
Kelvinator	3,140	15.622	2,280	39.860	860	21.827	240	22.642	3,100	24.257
Leonard	2,180	10.846	580	10.140	500	12.691			2,260	17.684
Majestic	520	2.587								
Mayflower	640	3.184	200	3.497					240	1.878
Norge									260	2.034
Keefe & Merritt	800	3.980	220	3.345			100	9.434	160	1.252
Travel					300	7.614	160	15.094		
Westinghouse	360	1.791			260	6.599				
Miscellaneous	200	.985	220	5.522					180	.740
	2,240	11.144	760	13.287	940	23.858	360	33.962	760	5.947
Age in years:										
Under 1 year	3,860	19.204	880	15.384	820	20.812	320	30.189	2,180	17.058
2 years	2,740	13.633	920	16.081	680	17.255	320	30.189	1,940	15.180
3 years	2,780	13.831	1,220	21.329	1,000	25.338	220	20.755	1,760	13.722
4 years	2,640	13.134	860	15.035	660	16.751	120	11.320	15,020	116.020
Over 4 years	8,080	40.199	1,840	32.168	780	19.797	80	7.547	4,980	38.967
Class "A" families	4,940	100.000	780	100.000	1,640	100.000	360	100.000	2,900	100.000
Do not own mechanical refrigerator	1,580	31.984	220	28.205	1,000	60.976	260	72.222	480	16.522
Own mechanical refrigerator	3,360	68.016	560	71.795	640	39.024	100	27.778	2,420	83.448
Class "B" families	45,380	100.000	14,340	100.000	14,380	100.000	7,680	100.000	31,660	100.000
Do not own mechanical refrigerator	31,480	69.370	9,880	68.898	11,360	78.999	6,720	87.500	21,700	68.541
Own mechanical refrigerator	13,900	30.630	4,460	31.102	3,020	21.001	960	12.500	9,960	31.459
Class "C" families	40,240	100.000	14,880	100.000	3,440	100.000	1,240	100.000	20,200	100.000
Do not own mechanical refrigerator	37,400	92.942	14,180	95.296	3,160	91.861	1,240	100.000	19,800	98.020
Own mechanical refrigerator	2,840	7.058	700	4.704	280	8.139			400	98.980

Servicing Majestic Thermostats

(Continued from Page 13, Column 5)
splined head of the range adjusting screw.

Temperature Adjustment

The temperature range is adjusted by moving the dial pointer. A movement of the pointer from position No. 1 to position No. 9 lowers the operating range approximately 10 degrees.

When it is desired, a change may be made in the temperature range by setting the pointer to No. 5, turning the pointer as many points on the dial as is required, then remove the dial plate and replace it with the pointer set on position No. 5.

To raise the box temperature, turn the dial pointer to the left, and to lower the box temperature, turn the dial pointer to the right.

Altitude

No change in temperature settings should be required for elevation up to three thousand feet. However, it may be necessary to raise the setting approximately one-half degree for each additional one thousand feet of elevation.

Differential Adjustment

Turning the differential adjusting screw does not affect the cut-out temperature setting, but it does change the cut-in temperature setting approximately two and one-half degrees for each complete turn of the differential adjusting screw.

To increase the differential, turn the differential adjusting screw to the left, and to decrease the differential, turn the differential adjusting screw to the right.

Motor Overload Protection

The overload heater coil is connected in series with the motor. If a motor overload condition exists for any reason whatever, the solder film will melt due to the rise in temperature of the heating coil.

Because of the spring tension of the overload latch, the overload ratchet will revolve and release the latch, permitting the switch to snap open.

This operation automatically turns the switch lever to the "off" position. It is necessary to turn the switch lever manually to the "on" position to restart the motor. Always allow sufficient time for the solder to cool before turning the switch lever to the "on" position.

Overload and Defrosting Switch

An overload occurring in the motor from any cause will automatically throw the switch lever to the "off" position. The overload mechanism is so designed that an overload will trip the switch open even if the switch lever is held manually in the "on" position.

This device gives positive protection even with a stalled motor. The same switch may be used for disconnecting or defrosting by moving it to the "off" position.

A metal tag is attached to each overload heater coil indicating the maximum continuous current that the coil will carry without tripping open the switch contacts.

Overload Switch Cuts Out

Frequent tripping of the overload indicates some abnormal condition, provided the overload heater coil has the proper capacity, frequent tripping of the overload may be due to high head pressure, a stiff compressor, low voltage or motor trouble.

Short Cycles

Short cycles may be due to the capillary tube of the thermostat touching some point of the evaporator colder than the bulb.

Long Cycles

Long cycles may be due to the thermostat having its range so low that the machine operates inefficiently. Long cycles may also be caused by the thermostat bulb being loose in the clamp.

Will Not Cut In

The cutting in of the thermostat will not start the motor unless the switch lever is in the "on" position. The switch will not cut in when the bellows has lost its charge. Cutting in of the thermostat will not start the motor when there is an open circuit in the wiring.

Will Not Cut Out

The thermostat will not cut out if the temperature range is set below the ultimate limit of the refrigerating system, or the evaporator temperature cannot be lowered sufficiently to maintain correct box temperatures. A short circuit in the cable connected to the thermostat will prevent motor from being stopped by the operation of the thermostat.

No Charge in Bellows

If slight pressure only is necessary to depress head of power element when bulb is at room temperature,

Type 'DV' Thermostat

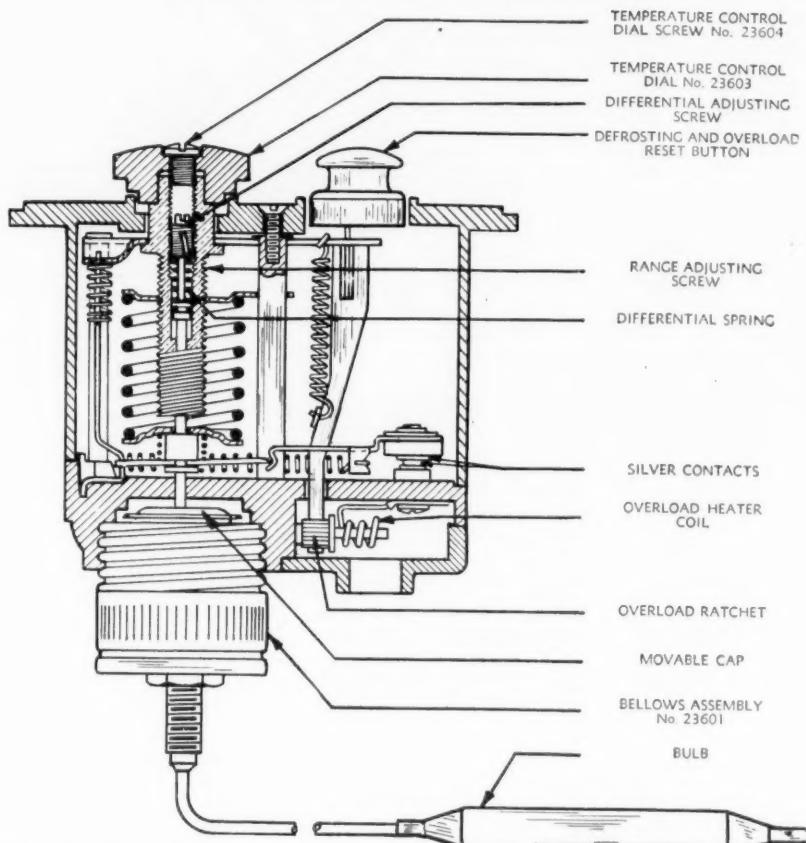


Fig. 3—Cross-sectional drawing of type 'DV' Majestic thermostat.

it will be necessary to replace it. Since this assembly has an internal stop, it will be unnecessary to cool bulb to install new assembly. Proceed as follows:

1. Remove bellows housing screws.
2. Remove bellows locknut.
3. Replace assembly.
4. Reassemble switch.
5. Adjustments—proceed as outlined above. Cut-in temperature should be 32° and cut-out temperature should be 22° F. For this adjustment, equipment necessary will be two tall glasses of crushed ice and salt and an accurate mercury thermometer.

Type 'DV' Thermostat

Mounting

Mount the Type "DV" thermostat (see Fig. 3) securely to the rear of the coil shield or evaporator front by means of two machine screws and nuts.

Clamp the thermostat bulb firmly to the cooling unit. It is important that no part of the capillary tube touches any part of the evaporator. If the bulb is loose in the mounting clamp, erratic operation of the thermostat may be expected due to varying heat transfer from the cooling unit to the bulb.

Operation

The temperature at the thermostat bulb affects the pressure in the power element. The thermostat switch operates when the gas in the power element reaches the temperature at which the switch is adjusted to operate.

Temperature Control Dial

The temperature control dial may be used to adjust the operating range. The dial is held in place on the hexagonal head of the range adjusting shaft by a special nickel plated screw.

Temperature Adjustment

The temperature range is adjusted by moving the temperature control dial. A movement of the dial from No. 1 position to No. 8 position lowers the operating range approximately 10°.

When it is so desired, a change may be made in the temperature range by setting the pointer to No. 5, turning the dial as many points as is desired, remove the dial and replace it with the pointer set on position No. 5.

To raise the box temperature, turn the dial to the left, and to lower the box temperature, turn the dial to the right.

Altitude

No change in temperature settings should be required for elevations up to three thousand feet. However, it may be necessary to raise the setting approximately one-half degree for each additional one thousand feet of elevation.

Differential Adjustment

Turning the differential adjusting screw, found under the temperature control dial screw, does not affect the cut-out temperature, but it does change the cut-in setting approximately 4° for each complete turn of the screw.

To increase the differential, turn the differential adjusting screw to the right, and to decrease the differential, turn the screw to the left.

Motor Overload Protection

The overload heater coil is connected in series with the motor. If a motor overload condition exists for any reason whatever, the solder film

will melt, due to the rise in temperature of the heating coil.

Because of the spring tension of the overload latch, the overload ratchet will revolve and release the latch, permitting the switch to snap open. This automatically pushes the button out to the "off" position.

It will then be necessary to manually depress the button to start the unit again. Always allow sufficient time for the solder to cool before pressing the button. This button is also the "off" and "on" switch for the unit. Pull to defrost, push to start.

Overload Switch Cuts Out

Frequent tripping of the overload indicates some abnormal condition, provided the overload heater coil has the proper capacity. Frequent tripping of the overload may be due to high head pressure, a stiff compressor, low voltage or motor trouble.

Short Cycles

Short cycles may be due to the capillary tube of the thermostat touching some point of the evaporator colder than the bulb.

Long Cycles

Long cycles may be due to the thermostat having its range so low that the machine operates inefficiently. Long cycles may also be caused by the thermostat bulb being loose in the clamp.

Will Not Cut In

The cutting in of the thermostat will not start the unit unless the switch lever is in the "on" position. The switch will remain in the open position if the bellows has lost its charge.

Replacing Bellows

Replacing bellows in this switch is simplicity itself. The old bellows assembly is unscrewed from the switch body and a new one substituted. Be sure the new assembly is as tight as it can be made, turning it by hand.

Adjust as outlined above using two tall glasses of crushed ice and salt for the upper and lower temperatures. The switch should kick "off" at 22° and "on" at 32°. An accurate mercury thermometer should be used for checking these temperatures.

Type 'CH' Thermostat

Mounting

Mount the Type "CH" thermostat switch (see Fig. 4) securely to the rear of the coil shield or baffle with the escutcheon between switch and coil shield. Switch is held in place by means of two small machine screws and nuts.

Clamp the thermostat bulb firmly to the cooling coil. It is important that no part of the capillary tube touches any part of the evaporator. If the bulb is loose in the mounting clamp, erratic operation of the thermostat may be expected, due to varying heat transfer from the cooling unit to the bulb.

Operation

The temperature at the thermostat bulb affects the pressure in the bellows. The thermostat switch operates when the temperature of the gas in the bellows reaches the temperature at which the switch is adjusted to operate.

Temperature Control Knob

The temperature control knob may be used to adjust the operating range. (Concluded on Page 17, Column 1)

Check these features of the 1935 G-E "Care-free" Capacitor Motor



NO OTHER MOTOR HAS SO MANY FEATURES THAT WILL HELP YOU SELL REFRIGERATORS

1 LARGE OIL CAPACITY—The generous oil reservoirs permit a large amount of oil to be included at the factory. This results in a long, care-free, service life.	2 INTERCHANGEABILITY—G-E motors of all types in 1/8-, 1/6-, 1/5-, h.p. of any frequency a-c. and d-c., have identical mounting dimensions.	3 EASE OF MOUNTING—ample clearance for bolting down base, also exceptionally convenient base assembly.	4 SIMPLIFIED CONNECTIONS—four terminals provide direct connection for line, cold control, box-light, and switch. No soldered connections necessary.
5 DRIP-PROOF—motor protected from falling matter.	6 TERMINAL BOX—built integral with end shield. Has four slots for incoming leads, and convenient, removable cover.	7 STEEL-BACKED BABBIT BEARINGS—mean minimized friction and maximum life. Are strong and durable.	8 LONG-STRAND PURE-WOOL-YARN PACKING holds oil in suspension, filters oil, and feeds it to bearings.
9 OIL THROWERS and OIL RETURNS retain the oil and return it to the wool packing for recirculation.	10 CONVENIENT ENCLOSED OILERS keep out dirt and permit refilling both bearings from the front of motor.	11 END-PLAY SILENCERS—cushion end-bump at both ends, yet permit free end-play, thus preventing power loss and unnecessary friction. Integrally built.	12 RELIABLE STARTING SWITCH—positive acting. Large contacts. Exhaustive life tests and years of service have proved its reliability.
13 INDESTRUCTIBLE ROTOR—cast-aluminum squirrel-cage. Inherently balanced. Permanent characteristics. Perfect electric circuit.	14 STRONG STEEL STATOR—laminations clamped rigidly. Patented shell holds punchings tightly even after repeated heating and cooling.	15 GENEROUSLY INSULATED STATOR—additional insulation at all important points gives maximum protection against shorts and grounds.	16 EXCLUSIVE WINDING TREATMENT—will not soften under heat. Protects windings from moisture, high temperature, and mechanical injury. Suitable for use in Tropics.
17 CYLINDRICAL CAPACITOR—small space factor. Completely protected by steel cover, connected internally to motor.	18 RESILIENT MOUNTING—large rings of springy, live rubber, scientifically designed for effective sound insulation, hold motor permanently in alignment.	19 BELT-TIGHTENER BASE maintains belt tension proportional to load. Eliminates excess wear, friction, and power loss due to constant belt tension.	20 RADIO INTERFERENCE MINIMIZED—only a slight click when motor starts. Single moving contact operates only at start.
21 OVERLOAD ABILITY—to handle temporary overloads and long duty cycles during hot weather, and to start satisfactorily even on low voltage.	22 ECONOMY OF OPERATION—assured by high motor efficiency, low service costs, and—where G-E belt-tightener base is used—the reduction of friction.	23 EXCELLENT TORQUE CHARACTERISTICS—high break-away and pull-up torques. Motor output shows ample margin over compressor load requirements at all points.	24 PERFORMANCE meets all standards of NEMA and NELA and meets Underwriters' approval, assuring safety and reliability.
25 PRECISION MACHINING on rabbit fits and stator and rotor surfaces assures uniformity of quietness and other characteristics.	26 PROTECTION FROM RUST—all metal surfaces protected by suitable finishes and treatments to prevent injurious corrosion.	27 THOROUGHLY TESTED—These motors are given a heat run, performance check, and noise test after completion. Uniform G-E quality maintained.	28 EXCEPTIONAL PERFORMANCE and maximum strength with minimum weight. Effective design and correct materials produced this compact motor.
29 "CARE-FREE"—users are continually reporting new records of satisfactory service. The 1935 design, with added improvements, is "care-free."	30 COMPETENT ENGINEERING SERVICE—an engineering staff specializing in refrigerator-motor applications can aid you in solving your problems.	31 PIONEERED BY G.E.—More than 8 years ago the first capacitor motor was applied to refrigerators. Today's Type KC is accepted as the greatest motor value.	32 BUILT BY GENERAL ELECTRIC. Address General Electric, Dept. 6-201, Schenectady, N.Y.

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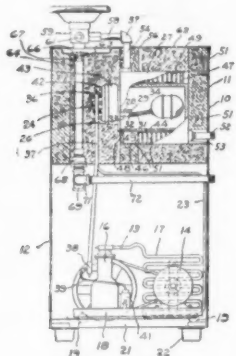
GENERAL ELECTRIC

PATENTS

Issued Sept. 4, 1934

1,972,079. WATER COOLING APPARATUS. Frederick R. Erbach, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a corporation of Michigan. Application March 1, 1930. Serial No. 432,365. 3 Claims. (Cl. 62-141.)

3. In a liquid cooler, the combination of a pair of casings disposed one within the other, a plurality of annular fins



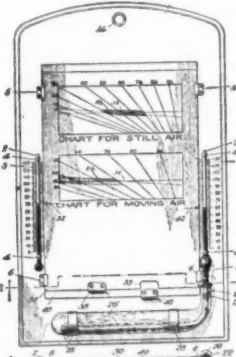
1,972,079

supported by the exterior surface of the inner casing, each of said fins being provided at its periphery with an opening for the passage of fluid to be cooled, the openings in adjacent fins being diametrically opposed, a liquid supply conduit connected to the exterior casing, a liquid discharge conduit connected to the exterior casing in a region remote from supply conduit so that fluid supplied to said casing must pass through each of said openings successively, and means for supplying and discharging a cooling medium to and from the interior casing.

1,972,088. AIR CONDITIONER. Lachlan W. Child, Toledo, Ohio, assignor to Air-Way Electric Appliance Corp., Toledo, Ohio, a corporation of Delaware. Application Sept. 19, 1931. Serial No. 563,848. 14 Claims. (Cl. 261-92.)

1. In a humidifier, a casing, a blower therein for producing an air stream therethrough, a carrier rotatably mounted therein so that a portion of said carrier projects into the air stream, means to supply liquid to an opposite region of the carrier, said carrier being remote from the blower whereby the air stream will diffuse into a substantially uniform air column which will not remove droplets of the liquid from the carrier and a heat unit comprising a plurality of elongated, flat elements arranged side by side in spaced parallel relation, extending substantially from end to end of the casing, and located in the path of the air stream from blower to carrier.

1,972,089. CALCULATOR AND DIRECT READING HUMIDITY INDICATOR. Henry W. Dusenberry, Kew Gardens, N. Y. Application Sept. 3, 1932. Serial No. 631,715. 20 Claims. (Cl. 73-24.)

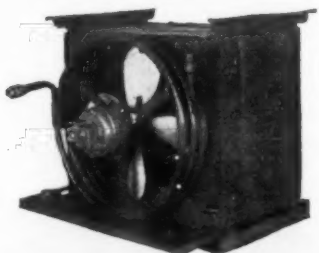


1,972,089

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and greater than 20° differential between air and refrigerant for process and commercial cooling applications.



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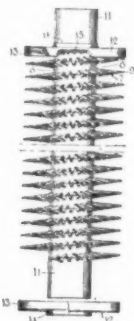
15. An instrument for directly determining relative humidity, which comprises a base, a dry bulb thermometer mounted thereon, a wet bulb thermometer mounted thereon, a transparent member slidable with respect to said base member having an indicator to point to the position of the fluid in the dry bulb thermometer and having a cross-line, a transparent member slidable with respect to said base and said first mentioned transparent member having an indicator to point to the position of the fluid in the wet bulb thermometer and having a cross-line, said lines being so arranged as to intersect when the pointers indicate the positions of the fluid in the dry and wet bulb thermometers, means for mounting the transparent members in slidable relation to said base member and to each other and a chart on said base member from which can be read the relative humidity by the intersection of the lines on the transparent slidable members.

1,972,109. AIR CONDITIONER. Frederick Riebel, Jr. and Lachlan W. Child, Toledo, Ohio, assignors to Air-Way Electric Appliance Corp., Toledo, Ohio, a corporation of Delaware. Application May 23, 1932. Serial No. 613,020. 17 Claims. (Cl. 257-138.)

2. An air conditioner for installation in a wall comprising a casing of sufficiently shallow depth to be received in a cavity in said wall, and provided with lower and upper intake and discharge openings in its front wall, a grille covering said discharge opening, a water reservoir occupying the space immediately below said discharge opening and adjacent the front wall of the casing, a heating element occupying the space between said reservoir and the rear wall of the casing, and spaced from top to bottom of the casing, a blower occupying the space below said heating element and reservoir and provided with a discharge mouth directly below the heating element, and a relatively thin wheel shaped carrier rotatably mounted in the reservoir in a plane extending longitudinally of the casing, the upper region of said carrier being positioned just behind said discharge opening.

1,972,230. FINNED TUBE. Edward G. Lehman, York, Pa., assignor to York Ice Machinery Corp., York, Pa., a corporation of Delaware. Application Feb. 17, 1933. Serial No. 657,283. 4 Claims. (Cl. 257-262.)

1. A finned heat exchange element comprising in combination a tubular member; a separately formed fin of sheet metal



1,972,230

coiled therearound in a progressive spiral in edge engagement with said tubular member; and at least one terminal member encircling and engaging said tubular member and having a peripheral flange overhanging said fin, at least a portion of said flange being bent into clamping engagement with an end portion of said fin.

1,972,231. ROOM COOLER. John C. Malm and Raymond C. Walsh, Los Angeles, Calif., assignors to California Consumers Co., Los Angeles, Calif., a corporation of Delaware. Application Oct. 22, 1932. Serial No. 639,094. 3 Claims. (Cl. 62-103.)

1. A room cooler comprising an upright casing, a receptacle for ice disposed within said casing, a passage for air between said casing and said receptacle, a blower beneath said receptacle adapted to circulate air upwardly through said air passage and said casing in substantially straight line flow, and a plurality of super-imposed condensate receiving means below said receptacle, said last named means being relatively staggered in plan and adapted to receive and collect condensate from all parts of the ice receptacle without obstructing said air passage.

1,972,240. PROCESS FOR OBTAINING DENSE CARBON DIOXIDE SNOW DIRECTLY FROM LIQUID CARBON DIOXIDE. Hans Rufener and Theophil Eichmann, Bern-Liebelfeld, Switzerland, assignors to Georges B. Scariett, Kennett Square, Pa., and James W. Brock, Newton, Mass. Application Dec. 18, 1928. Serial No. 326,899. Renewed June 29, 1934. In Switzerland June 26, 1928. 4 Claims. (Cl. 62-121.)

1. A process of producing dense, specifically heavy carbon dioxide snow from liquid carbon dioxide, including the steps of: expanding liquid carbon dioxide to a pressure below the triple point to produce dry carbon dioxide snow and gases, and simultaneously with and during the liquid expansion and snow formation, compelling the gases to diffuse downwardly through the dry snow to compress and compact the snow into a mass of higher density.

1,972,305. AIR COOLING SYSTEM FOR PASSENGER RAILWAY CARS. John M. Le Mieux, New Orleans, La. Application May 7, 1930. Serial No. 450,540. 2 Claims. (Cl. 62-117.)

1. Air cooling system for passenger railway cars including a refrigerating system to which energy is imparted through movement of the car, and a conduit for conducting a natural draft produced air current to desired points of distribution in said car, said conduit including a trunk portion extending longitudinally adjacent the roof of said car, transverse portions adjacent its forward end, collector heads communicating with said transverse portions and louvers arranged to catch the natural draft exterior to said car, a ceiling outlet communicat-

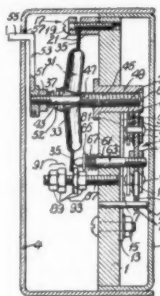
ing with said trunk conduit, said refrigerating system having the evaporative element thereof in heat exchanging relationship to said air current within said trunk conduit at a point between said transverse portions and said ceiling outlet.

1,972,360. MILK COOLER. Carl J. Severson, Glen Lake, Minn., assignor to Instant Cooler Co., Inc., Minneapolis, Minn., a corporation of Minnesota. Application Aug. 7, 1933. Serial No. 684,004. 4 Claims. (Cl. 257-179.)

2. In a device of the class described, a closed container for a fluid-cooling medium, an escape passageway leading from the top of the container, a substantially spiral channel on the container that progressively approaches the escape passageway at a progressively decreasing elevation, and a receptacle having leg-like troughs leading therefrom and supporting said receptacle on the container and arranged to discharge into the uppermost convolution of the channel.

1,972,364. THERMOSTATIC ELECTRIC SWITCH. John A. Spencer, Newtonville, Mass., assignor to General Plate Co., Attleboro, Mass., a corporation of Massachusetts. Application Sept. 19, 1932. Serial No. 633,772. Renewed Jan. 25, 1934. 17 Claims. (Cl. 200-138.)

1. A control comprising a snap-acting thermostatic disc, means supporting said disc at the periphery thereof, but leaving



1,972,364

a portion of the periphery free for movement, means for controlling the operating differential of said disc, and separate means controlling the operating temperature of said disc.

1,972,420. CONTROL DEVICE FOR A HEAT TRANSFER SYSTEM. Kurt Hahnel, Berlin-Siemensstadt, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany. Application July 18, 1932. Serial No. 623,257. In Germany July 29, 1931. 14 Claims. (Cl. 62-5.)

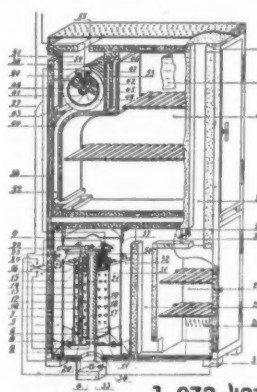
1. A heat transfer system of the class described including a circulating medium, an overflow in said system adapted to receive said medium, fluid displacement means arranged to coat with the medium in said overflow to control the circulation of said medium in said system, and means to automatically operate said displacement means to permit circulation or effect discontinuance of the same.

1,972,426. METHOD OF FILLING AN ABSORBER-GENERATOR. Ernst Noebel, Berlin, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany. Application Dec. 10, 1932. Serial No. 646,737. In Germany Dec. 14, 1931. 4 Claims. (Cl. 62-179.)

1. A method of preparing a filling mass for the generator-absorber of an absorption apparatus in which a solid absorbent capable of being swelled is utilized, consisting in immersing a good heat conducting material in the liquefied absorbing medium so as to provide the heat conducting material with a coat of said absorbing substance.

1,972,427. REFRIGERATING SYSTEM. Wulf Berzelius Normelli, Schiltigheim, France. Application Jan. 9, 1928. Serial No. 245,575. In Germany Feb. 18, 1927. 16 Claims. (Cl. 62-120.)

5. In a refrigerating system, the process of producing a refrigerating effect by driving, during the heating period



1,972,427

gaseous refrigerants out of solid absorbents contained in the thermal generator, by absorbing those gaseous refrigerants in solid absorbents contained in the evaporator and by reabsorbing these gaseous refrigerants in the solid absorbents contained in the thermal generator during the cooling period.

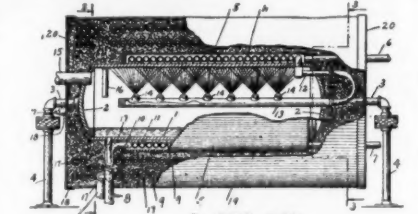
1,972,551. REFRIGERATING APPARATUS. Ernest Dickey, Dayton, Ohio, assignor to Frigidair Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 26, 1932. Serial No. 595,359. Renewed Nov. 2, 1933. 18 Claims. (Cl. 62-136.)

17. An evaporator comprising sheet-like metallic portions secured together and formed to provide a plurality of walls of a freezing chamber, a liquid refrigerant inlet connection and a refrigerant outlet header in the upper portion of the walls of the freezing chamber, a manifold formed between said sheet-like portions and located in the lower portion of a wall of the freezing chamber, a plurality of refrigerant passages formed between said sheet-like portions and communicating with said manifold and with said refrigerant outlet header, means for conveying refrigerant from said inlet connection to said manifold, and said

evaporator being provided with a receptacle supporting shelf having passages for refrigerant therein, and a conduit for conducting refrigerant from the inlet connection to the shelf.

1,972,580. ABSORPTION REFRIGERATION SYSTEM. Glenn F. Zellhoefer, Bloomington, Ill. Application March 16, 1933. Serial No. 660,981. 3 Claims. (Cl. 202-183.)

1. In an absorption refrigerating system, a combined still and heat exchanger including a closed still casing, a steam



1,972,580

jacket surrounding said casing, an outer spaced-apart casing, an axial strong liquor discharge pipe within the still casing provided with a plurality of spraying nozzles, a coil of strong liquor pipes leading from the absorber of the system arranged about the still casing within the outer casing, a coil of strong liquor pipes within the steam jacket connected to said outer coil and to the said discharge pipe, a pipe communicating with the interior of the still for leading the gaseous refrigerant distilled from the strong liquor solution to the system, a pipe for leading the weak liquor from which the refrigerant has been distilled from the still to the absorber of the system, said latter pipe being of less diameter than the strong liquor pipe coiled about the still and passed through said coil to form a heat exchanger.

1,972,704. REFRIGERATING APPARATUS AND PROCESS. David N. Crothwait, Jr., Marshalltown, Iowa. Application March 31, 1930. Serial No. 440,519. 23 Claims. (Cl. 62-115.)

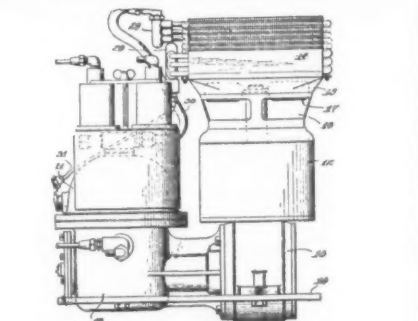
1. The method of refrigerating consisting in heating the refrigerant in a closed generating space to vaporize it under relatively high pressure, condensing this refrigerant by extracting heat therefrom, expanding and vaporizing this refrigerant at a lower pressure, compressing and returning the low pressure vaporized refrigerant to the original closed space by means of a jet of the high pressure vaporized refrigerant from the closed space and simultaneously condensing the intermingled fluids by enveloping the jet with the low temperature vaporized refrigerant.

1,972,705. REFRIGERATING METHOD AND APPARATUS. David N. Crothwait, Jr., Marshalltown, Iowa. Application Sept. 7, 1933. Serial No. 688,452. 16 Claims. (Cl. 62-115.)

1. The method of refrigerating in which refrigerant is circulated through a closed system, consisting in heating the refrigerant in a closed generating space to vaporize it under relatively high pressure, passing the high pressure vaporized refrigerant through a jet compressor to withdraw low pressure vaporized refrigerant from an evaporating space and compress it, condensing the vaporized refrigerant from the compressor at an intermediate pressure, returning a portion of the condensed refrigerant to the low pressure evaporating space and the remainder to the generating space, and maintaining a predetermined minimum pressure difference between the high pressure vaporized refrigerant and the intermediate pressure condensed refrigerant.

1,972,765. CONDENSER AND REFRIGERATING SYSTEMS. Frederick R. Erbach, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a corporation of Michigan. Application Dec. 19, 1927. Serial No. 241,073. 4 Claims. (Cl. 62-115.)

1. In combination, a compressor, a vertically disposed motor operatively connected thereto, a condenser connected to



1,972,765

said compressor and mounted over said motor, said condenser having a bank of tubes disposed in uniform relation to a plane inclined with respect to the horizontal and having an inlet connection adjacent its upper extremity and an outlet connection adjacent its lower extremity, and a fan mounted on said motor adapted to move cooling fluid through said condenser in an oblique relation to said bank of tubes.

1,972,766. HEATING, VENTILATING, AND AIR-CONDITIONING APPARATUS. Warren Ewald and John McElgin, Philadelphia, Pa., assignors to John J. Nesbitt, Inc., Philadelphia, Pa., a corporation of Delaware. Application July 7, 1933.

1. The combination with a fluid supply duct, of a valve for regulating flow through said duct, means for actuating the valve, a heating element for the fluid passing through the duct, and means for controlling passage of a heating medium to said element, and thermostatic control means for said valve-actuating means and for the heat control means operative at a predetermined temperature to open the valve to a predetermined extent, said thermostatic control means being operative at increased temperatures to progressively decrease the amount of the heating medium passing to said element, and at a predetermined increased temperature to further open said valve.

1,972,771. APPARATUS FOR LIQUEFYING SOLID CARBON DIOXIDE. Wal-

ter S. Haid, Tulsa, Okla., and Philip A. H. Terrell, Washington, D. C. Application Dec. 15, 1932. Serial No. 648,088. 15 Claims. (Cl. 62-91.5.)

2. A gas liquefier comprising a single cylinder formed from a plurality of sections, said sections having integrally formed closed ends and open ends, said closed ends being disposed within the opened ends and welded thereto.

1,972,782. LIQUID COOLING DEVICE. John S. MacArthur, Attica, N. Y. Application Aug. 16, 1933. Serial No. 685,433. 5 Claims. (Cl. 62-91.5.)

4. A liquid cooling device comprising a hollow body, a container for dry ice in the body, connected top closures for the container and body, means supporting the container from contact with the body, a valve mounted in an opening of the connected closures for directing gases from the container within the body, and means associated with the closure for the body for operating the valve.

1,972,800. FLUID COOLING APPARATUS. Frederick L. Shelor, Richmond, Va., assignor to S. & S. Engineering Corp., Richmond, Va., a corporation of Virginia. Application Jan. 3, 1933. Serial No. 649,997. 12 Claims. (Cl. 62-154.)

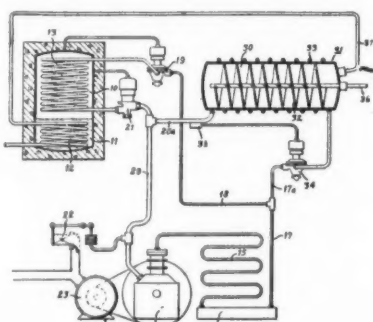
1. A fluid cooler comprising a liquid-tight receptacle, means for maintaining a predetermined level of water therein, an absorbent material on the exterior of said receptacle, communicating means for supplying water from the receptacle to said absorbent material for saturating the same, means for directing a current of air over the surface of the absorbent material for vaporizing the water thereon, and means whereby said communicating means may be shifted at will relative to the level of the water whereby the supply of water to the absorbent material may be stopped.

1,972,811. HEAT PUMP TEMPERATURE REGULATING UNIT. Gilbert Wilkes, Jacksonwald, Pa., assignor to Wilkes Avery Co., New York, N. Y., a corporation of New York. Application April 7, 1932. Serial No. 603,887. 22 Claims. (Cl. 62-129.)

1. A unit for heat pump temperature regulating apparatus comprising a casing, the said casing being insulated against radiation of heat and sound therethrough and having a stack inlet at one end and an outlet at the other, a bank of heat transfer tubes in said stack inlet, a compressor in said casing, and means in the casing and operatively associated with said heat transfer bank, effecting thereof as an evaporator or condenser as desired.

1,972,844. REFRIGERATION. James R. Killen, Dayton, Ohio, assignor to Frigidair Corp., Dayton, Ohio, a corporation of Delaware. Application April 14, 1933. Serial No. 666,165. 4 Claims. (Cl. 62-141.)

1. A refrigerating apparatus comprising a container for liquid to be cooled having an inlet and an outlet, a refrigerating



1,972,844

system for cooling said liquid including a cooling unit in thermal exchange with said liquid and means for withdrawing refrigerant from the cooling unit, a liquid pre-cooler for said container including a liquid tank having an inlet for liquid to be cooled and an outlet connected to the inlet of said container, a second cooling unit in thermal exchange with said tank, said second cooling unit being in refrigerant circuit flow relationship with said means for withdrawing refrigerant.

REISSUE

19,300 ELECTRIC SWITCH. Lewis W. Eggleston and Earnest J. Dillman, Detroit, Mich., assignors to Detroit Lubricator Co., Detroit, Mich., a corporation of Michigan. Original No. 1,953,469, dated April 3, 1934. Serial No. 496,413, Nov. 18, 1930. Application for Reissue July 11, 1934. Serial No. 734,638. 32 Claims. (Cl. 200-140.)

1. A device of the character described, comprising a movable supporting member having a resilient mounting, a switch blade fixed to and overlying said member and movable toward and from the same, and an operating means engageable with said blade to move said blade relative to said member, said resilient mounting permitting overtravel of said means.

PATENTS

Searches, Reports, Opinions by a Specialist in REFRIGERATION
H. R. VAN DEVENTER
Solicitor of Patents Refrigeration Engineer
342 MADISON AVE. NEW YORK

TEMPRITE

Instantaneous Cooling

"The leading cooler for water, beer and other beverages"

Write for Catalog

Temprite Products Corporation

(Formerly Liquid Cooler Corporation)

1349 Milwaukee East :: Detroit

How to Install & Replace Majestic Conventional Unit

(Concluded from Page 15, Column 3)

The knob is held in place on the splined temperature control screw by a small screw hidden under a Bakelite plug on pointer front.

Temperature Adjustment

The temperature is adjusted by moving the temperature control knob. A movement of the pointer from position No. 1 to position No. 9, lowers the operating range approximately nine degrees.

When it is desired, a change may be made in the temperature range by setting pointer to position No. 5, turning the pointer as many points on the escutcheon as is required, then remove the knob and replace it with the pointer set on position No. 5. To raise the range, turn the knob to the left, and to lower the range, turn the knob to the right.

Altitude

No change in temperature settings should be required for elevation up to three thousand feet. However, it may be necessary to raise the setting approximately one-half degree for each additional one thousand feet of elevation.

Differential Adjustment

Turning the differential adjusting screw does not affect the cut-out temperature setting, but it does change the cut-in temperature setting approximately two degrees for each complete turn of the screw. To increase the differential, turn the differential adjusting screw to the left or out, and to decrease the differential, turn the screw to the right, or in.

This screw is under the screw that holds the terminal cover on. To reach this screw a long slim screwdriver is necessary.

Motor Overload Protection

The overload heater coil is connected in series with the motor. If a motor overload exists for any reason whatever, the solder film will melt due to the raise in temperature of the heating coil. Because of the spring tension of the overload latch, the overload ratchet will revolve and release the latch permitting the switch to snap open.

This operation automatically pushes the button to the out or "off" position. It is necessary to depress the button to the "on" position to restart the motor. Always allow sufficient time for the solder to cool before depressing the button.

This same button is used as an "off" and "on" switch for the unit. Pulling the button out, turns the unit off for defrosting, and pushing the button in, turns the unit on.

Interchangeable Overload Coil

A metal tag is attached to each overload heater coil indicating the current that will eventually trip the switch.

Electrical Connections

Remove the terminal cover by removing the securing screw. It is under this screw that the differential adjusting screw will be found. Under the terminal cover will be found two terminals to which are attached the cable to the thermostat.

Overload Switch Cuts Out

Frequent tripping of the overload indicates some abnormal condition, provided the overload heater coil has the proper capacity, frequent tripping of the overload may be due to high head pressure, a stiff compressor, low voltage or motor trouble.

Short Cycles

Short cycles may be due to the

Installing Evaporator

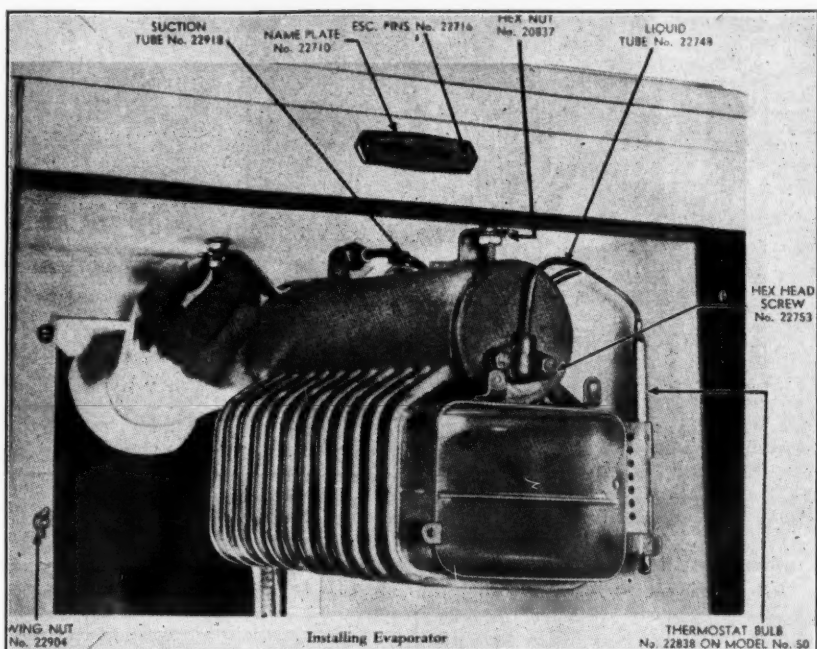


Fig. 5—In installing evaporator, excessive tipping should be avoided.

capillary tube of the thermostat touching some point of the evaporator colder than the bulb.

Long Cycles

Long cycles may be due to the thermostat having its range so low that the machine operates inefficiently or the thermostat bulb may be loose in its clamp on the cooling coil.

Will Not Cut-In

The cutting in of the thermostat will not start the unit unless the button is in the in or "on" position. The switch will remain open if the bellows has lost its charge.

Equipment necessary to replace bellows is two tall glasses of crushed ice and salt and an accurate mercury thermometer. Proceed as follows:

1. Remove side cover plate of switch. (Screw is under small Bakelite plug that may be picked out with a sharp pointed instrument.)
2. Remove bellows lock nut and tanged washer and discard old bellows assembly.
3. Cool bulb of new bellows assembly to 0° and remove from shipping clamp.
4. Slip new assembly into switch and replace tanged washer and lock nut.

Adjustments are 22° "off" and 32° "on." Proceed as outlined above for changing settings of switch using 22° in one glass and 32° in the other.

Installation

When installing the refrigerator in the customer's home, these instructions should be followed in the sequence given:

1. Remove the four shipping clamps, bolts and blocks and allow unit to rest firmly on rubber balls.
2. Remove caps from two valves on top of compressor.
3. Open discharge valve (nearest motor) by turning in a clockwise direction until valve stem seats firmly against test gauge outlet.
4. Plug in line cord.
5. Open suction shut-off valve by turning slowly in a clockwise direction until valve stem seats firmly against test gauge outlet.
6. Replace valve caps, taking precaution to see that copper washer is in proper position and that cap is firmly seated.

Don't Tip Evaporator

In the event that the unit must be moved after the valves have been opened, the motor must be stopped. Use every precaution to prevent unnecessary tipping of evaporator while

causes the oil film to be washed temporarily from the moving pump parts to the extent that the parts become dry, the pump may become temporarily locked. This condition is in no way injurious to the pump and may be corrected by proceeding as follows:

1. Be sure that evaporator is level. In many cases it may be found to be helpful to lower the front of the evaporator slightly, thus lowering the effective liquid level.
2. Close suction shut-off valve.
3. Rotate flywheel by hand until locking is eliminated. Start compressor, and, when tendency to lock or stall is eliminated, open suction valve very slowly. Repeat the above operation if necessary until unit operates normally.

Unit Replacement

In general, the procedure for replacement is as follows:

Close compressor discharge and suction valves.

Remove tubing clamps and guard from rear of cabinet.

Remove mounting balls and slide unit from rear of cabinet, taking every precaution to see that tubing is not bent, especially at the clamp on the top of the receiver.

Remove the outside and inside evaporator opening cover plates and remove insulation blocks and rubber tubing grommet.

Loosen evaporator hanging nuts and remove evaporator from cabinet.

Caution: Exercise every care to prevent excessive or unnecessary bending of tubing. Never loosen motor clamping nuts while removing or replacing shipping stand, as this will cause misalignment of motor bearings.

To install a replacement unit, place the unit in position on the floor near the back of the cabinet. Remove evaporator from shipping stand.

Install evaporator in cabinet and determine that it is level. To prevent

Service Instructions Previously Published

This article is one of a series published by Electric Refrigeration News to give the service man help in servicing various makes of machines. Most of the makes described to date have been "orphan" machines on which service information is no longer readily available.

Service instructions on the following makes were published in these issues:

Absopure household.....	March 25, 1931
Majestic hermetic.....	Aug. 16, 1933
Allison.....	May 30 & June 6, 1934
Welsbach.....	June 13, 20, & 27, 1934
Rice household.....	July 4, 1934
Wayne household.....	July 11, 1934
Absopure com'l.....	July 18, 25, & Aug. 1, '34
Iceberg.....	Aug. 8, 1934
U. S. Hermetic.....	Aug. 15, 1934
Belding-Hall Electric.....	Aug. 22 & 29, 1934
Majestic standard.....	Sept. 12, 19, & 26, '34

loosening of evaporator in service, use brass or bronze washers, lock-washers and nuts on both bottom and top of evaporator hanger strip.

Install unit in unit compartment and mount firmly on rubber balls.

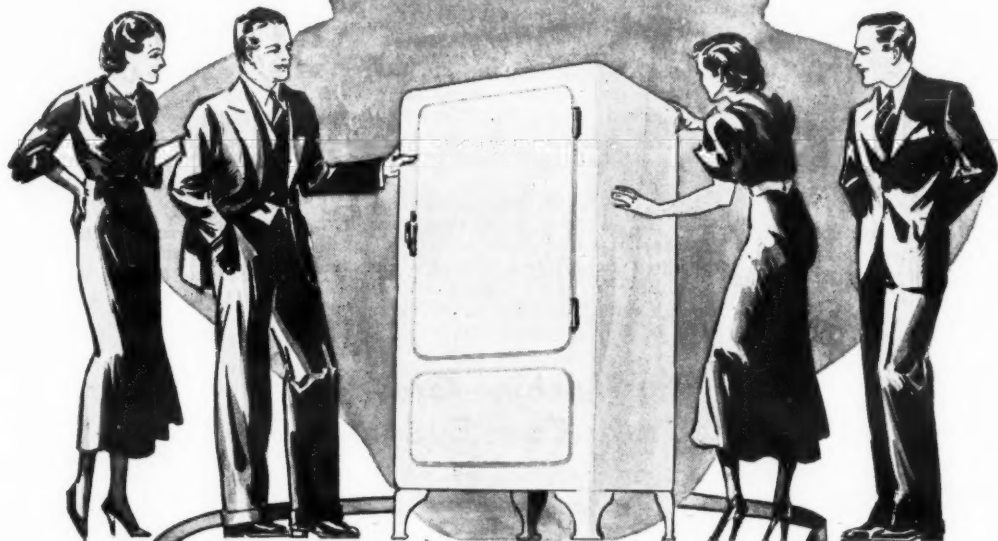
Bend tubing into position, avoiding sharp bends.

Install inside rubber gasket and porcelain cover plate with wing nuts.

Install rubber tubing grommet and insulation blocks.

Install outside rubber gasket and cover pan. Install tubing guard and clamp.

Care should be exercised in the methods of handling the unit at all times. Never lift the unit by the flywheel as this method may affect the operation of the seal, causing leaks due to misalignment.



"and the Salesman said-it's BONDERIZED under the Enamel"

In the hands of a skillful salesman, Bonderizing becomes more than a scientific method of rust-prevention; it becomes a trusted sales tool.

Pride of ownership is enhanced by every quality feature. But Bonderizing is not only a quality feature, assuring customers of lasting beauty in the refrigerator thus protected, but it is much more. Being a hidden feature, it is the best sort of evidence that the manufacturer is thorough in every manufacturing detail.

In selling the Bonderized refrigerator, use this proven sales point. You'll find it interests prospects and helps to make them satisfied customers.

PARKER RUST-PROOF COMPANY
2197 EAST MILWAUKEE AVE. • DETROIT

PARKER
RUST-PROOFING
processes
BONDERIZING
PARKERIZING

Parker Processes are the result of 18 years of continuous research, looking to improved technique of rust prevention and better finishes for iron and steel products. Literature describing these processes will be sent on request to manufacturers and technical men.

Cutler-Hammer Control

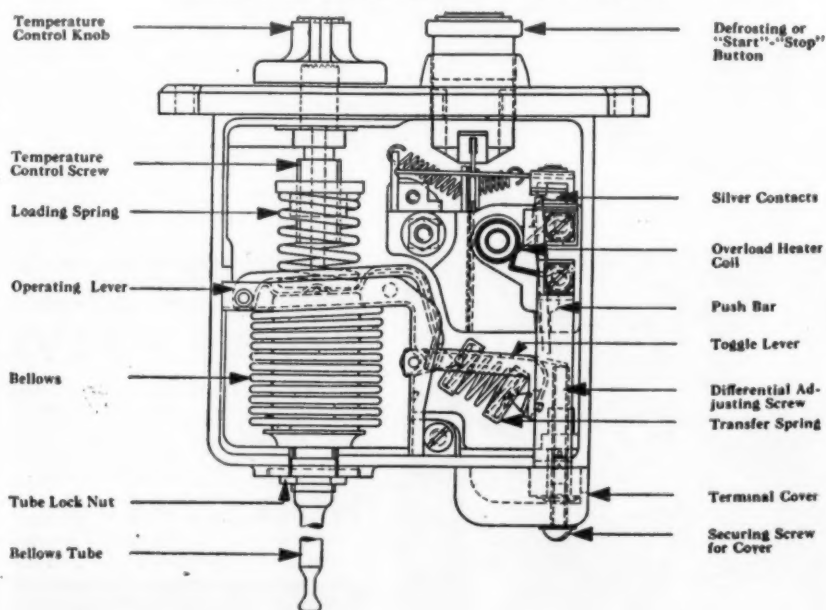
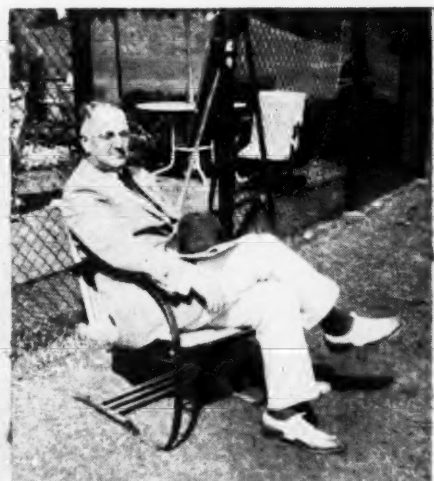


Fig. 4—Type CH thermostat described on page 15 and above.

Kelvinator Contest Winners Enjoy a Day of Recreation and Sightseeing at Mackinac Island



(1) This is not an automobile. They don't have 'em on Mackinac Island. It is a rubber-tired horse-drawn bus. (2) Vice President H. E. Burritt suns himself at the golf clubhouse. (3) Vance Woodcox (right) in beret. (4) Pause in a sightseeing tour. All these pictures were taken during the Mackinac stopover of the Kelvinator Mystery Cruise.

7,300 Detroit Women, Guests of Norge, Vote on 15 Colored Cabinet Combinations

(Concluded from Page 1, Column 2) promotion manager and director of the show, terms it, into the proceedings. This indirect selling presentation was made in the form of a dramatic skit designed to demonstrate the "use value" of the Norge refrigerator.

The playlet "A Day with Mary Lane" written by Mr. Sterling, slipped across points about the features of the Norge refrigerator and the economy story of electric refrigeration while at the same time keeping the audience well entertained.

Two principal parts in the play were taken by Harriet Livingstone, who has an important role in the Detroit revival of *The Drunkard*, and Betty Appel, Norge home service director. In Miss Appel, Norge has a home service director who is also a capable actress, and the value of this became apparent when Miss Appel put an emphasis on those lines which told the Norge story in a manner that couldn't have been done by a professional actress.

In addition to this three-act playlet, there was plenty of other entertainment, furnished chiefly by Corine Muer's troupe. In providing all this entertainment Norge officials were giving trial to another idea, namely, that of breaking down the defensive, sales-resistant attitude so noticeable at straight selling group demonstrations such as cooking schools, by putting on a show of such magnitude that the housewife would feel grateful to the Norge selling organization for the manner in which they had entertained her.

While those attending the show were given a blank to fill out in connection with the ballot (several door prizes of considerable value were offered to get all the women to vote) there is to be no direct follow-up unless the woman indicated that she

was interested in receiving information about the appliances through the mail.

If a woman asks for information she will be literally "deluged" with direct mail promotion, Mr. Sterling declared.

Those in attendance were also asked to give their preferences on the following appliances, if they did not already have them in their home:

Air conditioners, electric range, refrigerator, dishwasher, gas stove, ironer, washing machine, radio, oil burner.

Refrigerators in the following color finishes were voted on at the show:

Seaford (a blue and green combination); all-white porcelain finish with gray base; all-white porcelain with red trim; macaroon; all-white porcelain finish with black trim; autumn tan; jade green; primrose; mint green; café; cloud gray; bisque with maroon base; white with green trim; white with tan trim; verde (pale green).

Howard E. Blood, president, and John H. Knapp, vice president and director of sales, both of whom made speeches explaining Norge's purpose in going to the housewives to get ideas about the kind of refrigerators they would like to have.

Big Machine Group Drafts Code Budget

(Concluded from Page 1, Column 2) basis of criticisms or objections made by members of the industry.

The total amount of the budget for the stipulated period is \$40,335. The basis of contribution is as follows: 1/2 of 1 per cent on estimated sales of \$24,000,000 for the above defined budgetary period.

Deputy Administrator King also announced that any objections to the termination of exemption granted under Paragraph 3, of Administrative Order X-36, as requested by the Code Authority for the refrigerating machinery industry, must be submitted to him in room 3076, Department of Commerce building, prior to Sept. 25.

The paragraph referred to relieves members of an industry or trade, from the necessity of contributing to the support of a code other than that covering their principal line of business.

The Code Authority has asked that an exception be granted from the paragraph so that those members of the refrigerating machinery industry whose principal line of business is other than that embraced by such industry may be required to contribute to the expense of administering the refrigerating machinery code.

Majestic Liquidation To Start Soon

(Concluded from Page 1, Column 1) mittee pointed out that in considering the proposal, it had to bear in mind that before any distribution to bondholders and unsecured creditors is possible, all priority claims must be discharged in full by the bankrupt estate, the claims being estimated at \$1,200,000. It assumed that this amount would have to be deducted from amounts realized from the sale.

The committee concluded that on liquidation, the bondholders and unsecured creditors would receive in cash an amount at least equal to what this proposal provided in both cash and bonds. The committee was further uncertain as to what could be realized from the land, buildings, trade name, patents, etc.

Although it expects substantial sums to be realized from these assets, states the report, the committee included no value for these assets.

Program Announced for Direct Mail Meeting

(Concluded from Page 1, Column 3)

Direct Mail Advertising Association and advertising manager, United States Envelope Co., Springfield, Mass., as chairman; "Its Time for Plain Talk"—Roy Dickinson, president *Printers' Ink*, New York. Continuing general session, chairman, Paul T. Babson, president, United Business Service, Boston; "The National Advertiser Looks at Direct Mail"—Allyn B. McIntire, president, Association of National Advertisers and vice president, Pepperell Mfg. Co., Boston; "What Do We Expect from our Advertising?"—Arthur H. Brayton, sales promotion manager, Marshall Field & Co., Chicago; "A 73 Per Cent Increase in Business"—Clifford E. Ball, advertising manager, Skelly Oil Co., Kansas City; "What Is in Store for You?"—John A. Smith, Jr., chairman, conference program committee and advertising manager, Frank E. Davis Fish Co., Gloucester, Mass.

4:30 p. m.—Annual business meeting and election.

6:00 to 9:00 p. m.—"27 Industries" group meetings.

Program for Wednesday

Wednesday, Oct. 10, general media session, chairman, C. A. Bethge, vice president, Chicago Mail Order Co., "How Direct Mail Ties in with Radio Advertising"—E. P. H. James, sales promotion manager, National Broadcasting Co., New York; "A Balanced Diet of Newspaper and Direct Advertising"—Spencer Huffman, advertising counselor, *Baltimore News-Post* and *American*; "Coordinating Direct Mail and Outdoor Advertising"—Leonard Dreyfuss, president, United Advertising Corp., New York; "Building Magazine Circulation by Mail"—Frank Herbert, circulation manager, *Popular Science Monthly*, New York.

Thursday, Oct. 11, departmental sessions: Industrial—R. L. Gibson, manager, market research division, General Electric Co., Schenectady, chairman; Direct Selling—J. E. Blackburn, Jr., manager of mail sales, McGraw-Hill Publishing Co., New York, chairman; House Organ—Thomas Dreier, Melvin Village, N. H., chairman; Social Service—Mrs. Natalie W. Linderholm, extension secretary, Family Welfare Society of Boston, chairman; annual banquet and entertainment.

Better Letters Meeting

General session, chairman, Horace H. Nahm, member, board of governors, D.M.A.A. and president, Hooven Letters, Inc., New York. "Keeping Dealers Sold by Direct Mail"—Ernest G. Swanson, sales promotion manager, Russia Cement Co., Gloucester, Mass.; "Selling a Habit by Direct Mail"—J. S. Roberts, advertising manager, Retail Credit Co., Atlanta, Ga.; "The Unknown Sales Formula"—James Mangan, advertising manager, Mills Novelty Co., Chicago.

Better Letters Session, chairman, John C. Sweeney, director of mail sales department, International Correspondence Schools, Scranton, Pa.; "The Human Element in Letters"—H. G. Weaver, director customer research, General Motors Corp., Detroit; "Current Experiences with Sales Letters"—D. F. Ralphe, advertising manager, Hardware Mutual Fire Insurance Co. of Minnesota, Minneapolis; "New Trends in Business Letters"—J. C. Aspley, president, The Dartnell Corp., Chicago; "Let's Start a Mail Order Business"—Maxwell Droke, associate editor, *Sales Management*, Indianapolis.

Friday, Oct. 12, exposition open all day—9:30 a. m. to 10 p. m. for study of exhibits. Group meetings of advanced advertising classes.

BUYER'S GUIDE

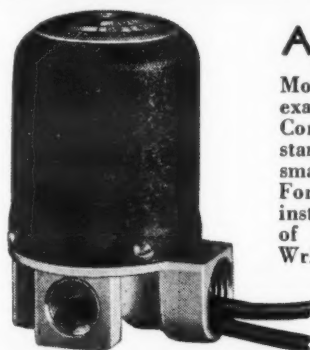
MANUFACTURERS SPECIALIZING IN SERVICE

TO THE REFRIGERATION INDUSTRY

SPECIAL ADVERTISING RATE (this column only)—\$12.00 per space.

Payment is required monthly in advance to obtain this special low rate.

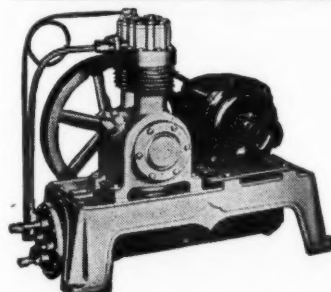
Minimum Contract for this column—13 insertions in consecutive issues.



A NEW COMPACT VALVE

Model 73-R Solenoid Valve, built to meet the exacting demands of the Refrigeration and Air Conditioning Industry. Drop forged body—heavy stamped cover, crackle finish. Easily installed, small and neat in appearance. Impact type plunger. For use with Freon, Methyl Chloride and similar installations. Can also be supplied for the control of water. Working pressure 200 lbs. 5/32" port. Write for details.

AUTOMATIC PRODUCTS CO.
121 N. Broadway Milwaukee, Wis.

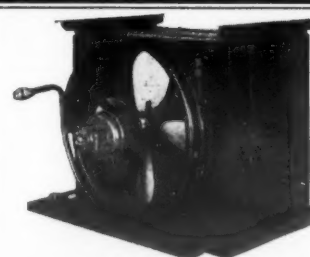


STARR FREEZE OUTSTANDING PERFORMANCE attested by satisfied users — EVERYWHERE!

Sturdy Condensing Units from 80 to 2868 Lbs. I.M.E., and all other commercial refrigeration equipment—Wall type cases with machinery—A beautiful household line of modern, conservative styles—Write for full data.

THE STARR COMPANY

Cable "Starr" Richmond, Indiana (factory) Since 1927
1344 S. Flower St., Los Angeles, Calif.



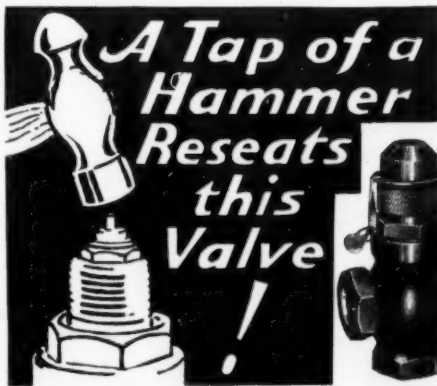
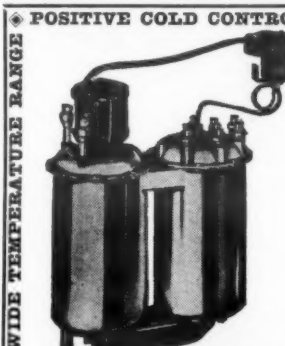
KRAMER UNIT COOLERS Manifolded for FREON

and for a greater than 20° differential between air and refrigerant

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Main Offices and Factory, TRENTON, NEW JERSEY
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Sell this big aid to Better Business

Dispensers who serve their beer at exactly the desired temperature at all times are getting the bulk of the business these days. Because it enables them to dispense beer in any quantity, at any set temperature, the Radial Dual Control Beer Cooler materially aids dispensers in building up a profitable patronage. Push the Radial Dual Controlled Beer Cooler now—you'll find your prospects enthusiastic over its remarkable advantages. Write today.

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POSITIVE COLD CONTROL • FOAM CONTROL • AUTOMATIC CONTROL • SAFE • WIDE TEMPERATURE RANGE • INSTANTANEOUS INDIRECT COOLING • WIDE CAPACITY RANGE • COMPACT

HENRY RELIEF VALVES

For Freon and Methyl Chloride. Accurate release of pressure at any pre-determined relief point. Exclusive patented reseating feature. Soft metal seat—will not rust, corrode or stick. Nor will it melt under temperature caused by gas friction. Sizes up to 2".

HENRY VALVE CO.
Specialized Valves & Fittings for Refrigeration
1001-19 N. Spaulding Ave., Chicago

WRITE FOR BULLETINS DESCRIBING HENRY REFRIGERATION SPECIALTIES

McCORD REFRIGERATION PRODUCTS

COMMERCIAL EVAPORATORS

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CONDENSERS

METLFLEX ICE TRAYS

SPIRAL FINNED TUBING

SPIRAL COPPER FINNED IRON

STEEL OR COPPER PIPE

McCORD
RADIATOR &
MFG. CO.
DETROIT, MICH.

QUESTIONS

Display Case Doors

No. 1846. (Importer, Canada)—"Will you please give us the names of manufacturers of refrigerated meat counter doors of Bakelite or rubber construction."

"We have been referred to you for this information by the Canadian General Electric Co."

Answer: Hard rubber doors for refrigerated display cases are manufactured by American Hard Rubber Co., 11 Mercer St., New York, N. Y.; Luzerne Rubber Co., Trenton, N. J.; and Miller Rubber Products Co., S. High St., Akron, Ohio.

Bar Glassware

No. 1847. (Distributor, Washington)—"We are most anxious to purchase bar glasses direct from a glass factory producing the more modern types of glasses. Will you please submit a list of these factories to us since they do not appear in your directory and handbook? If you do not have this list, perhaps you can obtain the names of some firms for us from some of the larger bar equipment distributors in your city."

"This is the most important item in the beer business to us now and we are most anxious to make some good connections. We thank you for this information."

Answer: Bar glassware is manufactured by the following companies: McKee Glass Co., Jeannette, Pa.; Ohear-Nester Glass Co., East St. Louis, Ill.; Owens-Illinois Glass Co., Toledo, Ohio, and F. E. Reed Glass Co., Rochester, N. Y.

Answer: An article announcing and describing this electric cabinet kitchen appeared in the June 20 issue of ELECTRIC REFRIGERATION NEWS and a picture was published in the Aug. 29 issue. Address: Electric Invisible Kitchen and Bar-ette, 1487 Merchandise Mart, Chicago, Ill.

Electric Invisible Kitchen

No. 1848. (Manufacturer, Washington)—"Will you kindly give us the address of the 'Electric Invisible Kitchen Co.' of Chicago."

Answer: (See below.)

No. 1849. (Distributor, Massachusetts)—"On the back page of your Aug. 29 issue appears the picture of an electric kitchen produced by the

Electric Invisible Kitchen Co. of Chicago.

"We are interested in receiving further information including discounts and specifications. If you can forward this inquiry to them, we shall very much appreciate it."

Answer: An article announcing and describing this electric cabinet kitchen appeared in the June 20 issue of ELECTRIC REFRIGERATION NEWS and a picture was published in the Aug. 29 issue. Address: Electric Invisible Kitchen and Bar-ette, 1487 Merchandise Mart, Chicago, Ill.

Vending Machines

No. 1850. (Manufacturer, New Jersey)—"We are interested in learning the names of manufacturers of ice cream vending machines, similar to the Sanisco."

"Therefore, if you are acquainted with any type of machine for dispensing ice cream either from the bulk or from a brick, we will greatly appreciate the information as promptly as possible."

Answer: Mills Novelty Co., 4100 Fullerton Ave., Chicago, Ill., manufactures ice cream vending machines. At one time such machines were also made by Arthur H. Du Grenier Sales Corp., 10 High St., Boston, Mass.

List of Manufacturers

No. 1851. (Manufacturers' Agent, Illinois)—"Can you supply or advise me where I can get a list or directory of manufacturers of household electric refrigerators and component parts."

"If I remember correctly, in one of your issues of several years ago you published such a directory and if similar current information is available, I would like very much to get it."

Answer: (See below.)

No. 1852. (Dealer, Indiana)—"We are considering the establishment of an electrical refrigeration service department and would appreciate the names and addresses of sources of supply on refrigerator parts for various makes."

Answer: The first directory of electric refrigeration manufacturers was published in the Feb. 2, 1927 issue of ELECTRIC REFRIGERATION NEWS. This directory was revised and the list expanded during 1927 and published in the revised forms at frequent intervals during the year. In 1928, 1929, 1930, and 1931 the lists were further expanded finally including component parts, cabinets, supplies, accessories, etc.

The first complete directory published in book form was the 1932 REFRIGERATION DIRECTORY AND MARKET DATA BOOK. The latest revised edition is the current 1934 REFRIGERATION DIRECTORY AND MARKET DATA BOOK which lists manufacturers of refrigeration systems, parts, supplies, and accessories and of air conditioning and beer cooling equipment. Also included are refrigerator specifications and industry statistics.

'Small' Refrigerator

No. 1853. (Distributor, Maryland)—"Will you please advise us if there is a company making an electric refrigerator about half the size of the Kelvin-Chest made by Kelvinator."

"We would appreciate receiving this information at your convenience."

Answer: We have no knowledge of an electric refrigerator about half the size of the Kelvin-Chest. Several manufacturers other than Kelvinator Corp. have introduced small lift top models, but they are all of about 2 cubic feet net storage capacity. Small lift-top models are made by Crosley Radio Corp., Cincinnati, Ohio; Frigidaire Corp., Dayton, Ohio; General Electric Co., Cleveland, Ohio; Kelvinator Corp., Detroit, Mich.; Leonard Refrigerator Co., Detroit, Mich.; Norge Corp., Detroit, Mich.; Stewart-Warner Corp., Chicago, Ill., and Westinghouse Electric & Mfg. Co., Mansfield, Ohio. Specifications of lift-top models were published in the Aug. 8 issue of ELECTRIC REFRIGERATION NEWS.

Air-Conditioning Books

No. 1854. (Dealer, Illinois)—"Can you advise us the name of a book which has up-to-date information concerning air conditioning. We are particularly interested in getting a book giving fundamental principles of air conditioning."

Answer: Two books dealing with air conditioning are "Air Conditioning" by Moyer & Fittz, published by McGraw-Hill Book Co., 330 W. 42nd St., New York City, and "Air Conditioning for Comfort" by S. R. Lewis, published by Engineering Publications, Inc., 1900 Prairie Ave., Chicago.

Autographic Register

No. 1855. (South Dakota)—"Where can I obtain additional information regarding the autographic register made by Standard Register Co., mentioned in the Aug. 29 issue of the News?"

Answer: Write to Standard Register Co., Dayton, Ohio.

Planned Kitchens

No. 1856. (Manufacturer, Quebec, Canada)—"We are thinking of seriously entering the field of 'Modern Planned Kitchens' and desire some information in this regard."

"We wonder if you could advise us where we could get in touch with some manufacturers who would be willing to cooperate in such work, also where we could get names and addresses of firms who are employing this plan."

Answer: Thus far only two manufacturers of household appliances have entered the complete electric kitchen field: General Electric and Westinghouse. Each company manufactures refrigerators, ranges, and all the appliances which go to make up an all-electric kitchen, each has designed these kitchen appliances so that they will fit together into a unit, and each has kitchen planning departments which offer a designing and decorating service to families considering the installation of an all-electric kitchen. Both concerns also have distribution facilities in Canada.

Information on the General Electric kitchen may be had from A. M. Sweeney, specialty appliance division, General Electric Co., Nela Park, Cleveland, Ohio. Information on the Westinghouse kitchen can be obtained from R. C. Imhoff, Westinghouse Electric & Mfg. Co., Mansfield, Ohio.

Any General Electric distributor can tell you about his experience in selling all-electric kitchens, for they all have them to sell. We would suggest, in particular, that you write W. L. Thompson, Inc., 11 Deerfield St., Boston, Mass.; James & Co., Inc., 4144 Lindell Blvd., St. Louis, Mo.; S. C. Caswell, Caswell, Inc., 478 W. Canfield Ave., Detroit, Mich.; Warde Stringham, Southern Appliances, Inc., 1711 St. Charles Ave., New Orleans, La.; R. Cooper, Jr., 221 N. La Salle St., Chicago, Ill.; and Rex Cole, 265 Fourth Ave., New York City.

Trilling and Montague, N. W. Corner 7th and Arch Sts., Philadelphia, Pa., make up and sell their own electric kitchen under the trade name of Trilmont. Each appliance which becomes a part of the Trilmont kitchen unit is obtained from a different manufacturer. D. M. Trilling of that distributorship can no doubt supply you with further information on his set-up.

Colonial Stove Co., located at East Somerset, Trenton, Ave., and Reading railroad, Philadelphia, assembles "Colonial-Romance" kitchen ensembles, using electrical appliances of various makes with its own cabinets and accessories.

Refrigerator Hardware

No. 1857. (Electrical Contractor, New York)—"Will you kindly furnish me with the names of companies manufacturing hinges and latches for refrigerators."

Answer: See page 172 of the 1934 REFRIGERATION DIRECTORY for manufacturers of refrigerator hardware.

Individual Sales Figures

No. 1858. (Louisiana)—"I would appreciate it if you would give me the total number of electric refrigerators sold since they first began, on all makes 'separately'."

Answer: Individual manufacturers do not publicly release their sales figures. The members of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) report their sales to that body and reports for the Nema membership as a whole are released. A large number of non-Nema companies co-operated with ELECTRIC REFRIGERATION NEWS by furnishing confidential sales figures for use in determining the all industry seven months estimate of 1,134,800 announced as the new all-time record in the September 12 issue.

According to the 1934 REFRIGERATION DIRECTORY, a total of 5,885,000 household electric refrigerators were sold throughout the world by all American manufacturers up to Jan. 1, 1934. Adding American manufacturers' world sales of 1,134,800 for the first seven months of 1934 gives a total all-time sales figure of 7,019,800 units.

Deducting 411,300 as the total exports to date of American-made refrigerators, there were 6,608,500 household electric refrigerators sold to dealers and distributors up until Aug. 1, 1934. Then subtracting present stock of dealers and distributors of about 132,000 units, there have been

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6,476,500 household units purchased in the country to date. Assuming that 900,000 have been replaced through obsolescence, there are 5,576,500 now in operation in this country.

Standard Gas Properties Appliance Sales Gain

PHILADELPHIA—All properties in the Standard Gas & Electric Co., with one exception, increased household appliance sales for the first half of the year, the total increase amounting to \$552,000 or a gain of 41 per cent, officials of the company have announced.

The California Oregon Power Co.'s appliance sales gained 112 per cent, Mountain States Power Co., 84 per cent; Wisconsin Public Service Corp., 62 per cent; Southern Colorado Power Co., 56 per cent; San Diego Consolidated Gas & Electric Co., 36 per cent; Northern States Power Co., 33 per cent.

Kelvinator Representative Goes to Far East

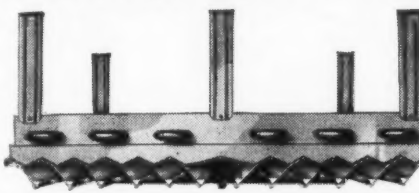
DETROIT—George F. Murray, Far Eastern representative of the Kelvinator Corp., sailed recently from Honolulu on the Taiyo Maru on a business trip to China, Japan, French Indo-China, Siam, Java, India, Arabia, France, and England.

He is not expected back at the Kelvinator home office here until February, 1935.

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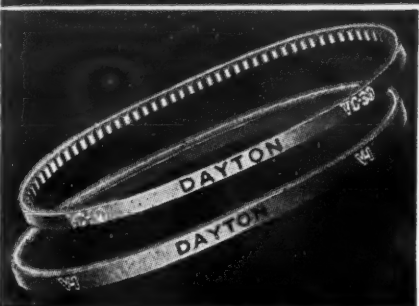
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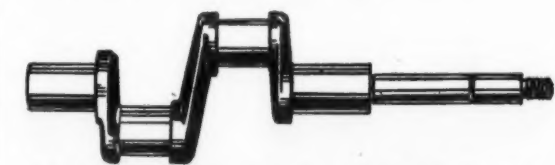
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